SONY

CAMERA COMMAND NETWORK UNIT

CNU-500

MAINTENANCE MANUAL
1st Edition
CNU-500 (UC) Serial No. 10001 and Higher
CNU-500 (CE) Serial No. 40001 and Higher

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理など行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠ WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠ AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

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Manual Structure

Purpose of this manual

This manual is the maintenance manual for Camera Command Network Unit CNU-500.This manual describes the information items necessary when the unit is supplied and installed, items on maintenance, and items that premise the service based on the components parts such as schematic diagrams, board layouts and spare parts list, assuming use of system and service engineers.

Contents

This followings are summaries of the each section for understanding the manual.

Section 1 Installation

Describes information about connector input/output signals, instance of configuration and function of internal switches.

Section 2 Service Overview

Describes information about board locations, circuit description replacement of part and notes on services.

Section 3 Spare Parts

Describes parts list and supplied accessories used in the unit.

Section 4 Semiconductor Pin Assignments

Describes function diagrams and pin names of semiconductor used in the unit.

Section 5 Block Diagrams

Describes overall block diagram.

Section 6 Schematic Diagrams

Describes schematic diagrams for every circuit board.

Section 7 Board Layout

Describes board layouts for every circuit board.

Related manuals

Besides this maintenance manual the following manuals are available for this unit.

- **Operation Manual (Supplied with this unit)**

This manual is necessary for application and operation of this unit.

- **System manual (Not supplied with this unit)**

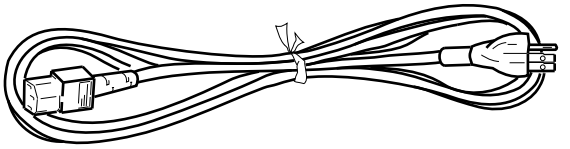
This manual is necessary for connection and operation of this unit and other peripheral equipment.If this manual is required, please contact Sony service organiization.

Section1
Installation

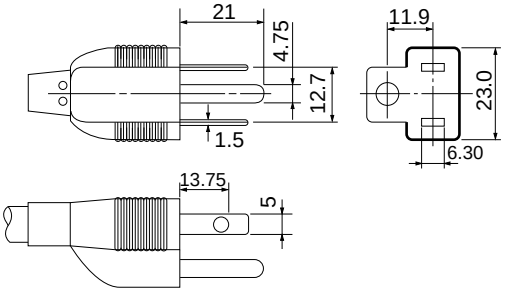
1-1. Supplied Accessories

Power cord: 1

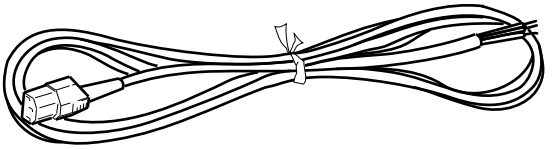
[for UC] (Sony Part No. 1-551-812-11)with 3P-plug



Cable length about 2.4 m
Rated Voltage 125 V
Rated Current 7 A



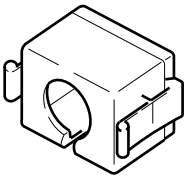
[for CE] (Sony Part No. 1-590-910-11)without plug



Cable length about 2.5 m
Rated Voltage 250 V
Rated Current 10 A

Plug Holder (B): 1

(Sony Part No. 2-990-242-01:for UC)
(Sony Part No. 3-170-078-01:for CE)



Operation Manual: 1
Maintenance Manual: 1

1-2. Connectors and Cable

1-2-1. Connector Input and Output signals

Main connector input and output signals are shown below.

BNC connector 75Ω

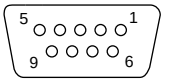
[Input Signal]

- REFERENCE 300 mVp-p, loop through

[Output Signal]

- CHARACTER 700 mVp-p,
  300 mVp-p (SYNC)

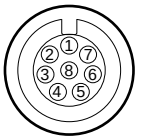
RS232C (9P, FEMALE)



(EXTERNAL VIEW)

No.	Signal	Specifications
1	DCD IN	DATA CARRIER DETECT
2	RXD (+) IN	RECEIVED DATA
3	TXD (+) OUT	TRANSMITTED DATA
4	DTR OUT	DATA TERMINAL READY
5	SIGNAL GND	SIGNAL GND
6	DSR IN	DATA SET READY
7	RTS OUT	REQUEST TO SEND
8	CTS OUT	CLEAR TO SEND
9	NC	—

REMOTE (8P, FEMALE)
RCP/CCU/MSU/VCS/AUX



(EXTERNAL VIEW)

No.	Signal	Specifications
1	TX (+)	CNU SERIAL DATA
2	TX (–)	
3	RX (+)	MSU/RCP/CCU/VCS/AUX
4	RX (–)	SERIAL DATA
5	TX GND	GND for TX
6	POWER (+)	∗1
7	POWER (–)	∗1
8	SPARE	
	CHASSIS GND	CHASSIS GND

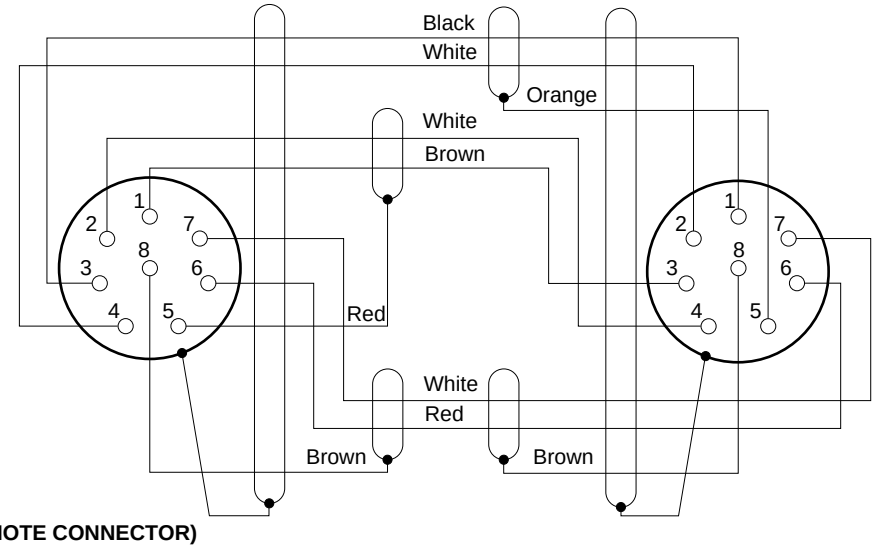
∗1
CCU1 to CCU6 Connectors
6pin • • POWER (+) IN
7pin • • POWER (–) IN
RCP1 to RCP6, AUX Connectors
6pin • • POWER (+) OUT (RCP POWER +30 V)
7pin • • POWER (–) OUT (GND for Power)
MSU/VCS Connectors
NOT USED

1-2-2. Connection Connector

Connection made with the connector panels during installation or service, should be made with the connectors/ complete cable assemblies specified in the following list, or equivalent parts.

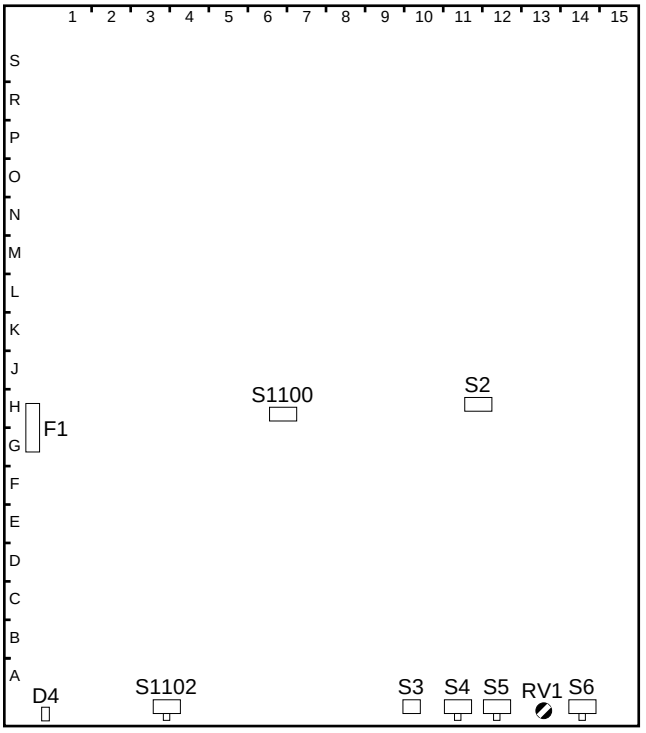
Connector Name	Connectoin Connector/Cable
REFERENCE CHARACTER (BNC)	1-560-069-11 PLUG, BNC or B-B cable ASSY (cable length 1.5 m, option)
RS232C (9P, FEMALE)	1-566-354-11 D-SUB, 9P MALE
CCU RCP MSU VCS AUX (8P, FEMALE)	1-766-848-11 PLUG, 8P MALE or CCA cable ASSY (option) CCA-5-10(10 m) CCA-5-3 (3 m)

1-2-3. Cable Wiring Diagram



CCA-5 CABLE(REMOTE CONNECTOR)

1-3. Functions of Switches on AT Board



AT-100 BOARD(A SIDE)

• S2

1: Selects the mode of the CHARACTER output signal when the video signal is not input to the REFERENCE terminal.When the switch is set to ON, the output signal becomes 625 line.When the switch is set to OFF(to figure side), the output signal becomes 525 line.
Factory-setting: OFF (for UC)
ON (for CE)

2 to 8: Not used
Factory-setting: OFF

• S3 (MODE)

0: Factory-setting

1: Enable the selection of the page displayed on the monitor screen connecting to the CHARACTER terminal using UP/DOWN switch.

2 to F: Not used

• S4 (UP/DOWN)

Enable the selection of the page displayed on the monitor screen by setting the S3 switch(MODE) to 1.Contents of pages are as follows.

Page	Contents
1	No display(when the power is turned on) If any fault has been detected during self diagnosis, the corresponding details are displayed.
2	The connection states of cameras 1 to 6 are displayed.
3	Not used
4	Not used
5	The results of automatic setup for cameras 1 to 6 are displayed.
6	Not used
7	DIAGNOSIS OF ALL CAMERAS (The results of self diagnosis for cameras 1 to 6 are displayed).
8	Not used
9	DIAGNOSIS OF ONE CAMERA (The result of self diagnosis for the selected camera are displayed).
10	DATA OF ALL CAMERAS (The settings for all connected cameras are displayed.)
11	DATA OF ONE CAMERA (The setting for the selected camera is displayed.)

• S5 (SET/CANCEL)

Selects the displayed item(item) or the camera(CAM) when displaying the page 9, 10 or 11 on the monitor screen.

• S6 (SYNC ON/OFF)

Used to specify whether a synchronizing signal is added to the video signal output from the CHARACTER terminal.
Factory-setting : ON

• S1100 (BAUD RATE SETTING)

SW No.	Setting Position						
S1100-2	ON	OFF	OFF	OFF	OFF	OFF	OFF
S1100-3	OFF	ON	OFF	OFF	OFF	OFF	OFF
S1100-4	OFF	OFF	ON	OFF	OFF	OFF	OFF
S1100-5	OFF	OFF	OFF	ON	OFF	OFF	OFF
S1100-6	OFF	OFF	OFF	OFF	ON	OFF	OFF
S1100-7	OFF	OFF	OFF	OFF	OFF	ON	OFF
S1100-8	OFF	OFF	OFF	OFF	OFF	OFF	ON
BAUD RATE	19,200	9,600	4,800	2,400	1,200	600	300

Unit : bps

Note

Be sure to set one of these switches to ON.Never set two or more switches to ON or all switches to OFF.

Factory-setting : 19,200 bps.
S1100-1 : Not used

• S1102 (OPERATION)
NORMAL: Normal mode
EMERGENCY: When the CNU-500 or master setup unit does not operate normally, set this switch to EMERGENCY.The camera can be controlled by the control panel.
Factory-setting : NORMAL

• D4 (+5 V INDICATOR)
Lights when the +5 Vdc is supplied to the AT-100 board correctly.

• RV1 (CHARACTER PHASE)
Adjusts the horizontal phase with respect to the reference signal of the video output from the CHARACTER terminal.When the monitor is set to external sync signal, the horizontal position of the CHARACTER can be adjusted.

1-4. Installation

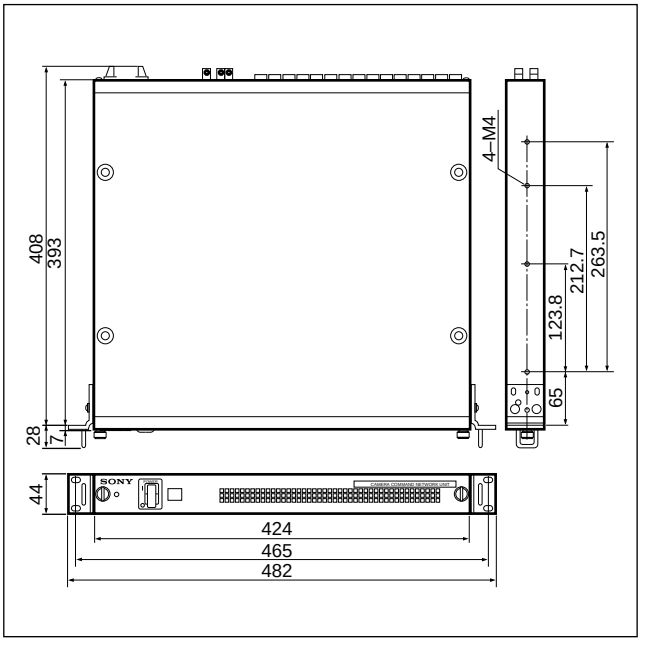
1-4-1. Installation Conditions

Operating temperature : +5°C to +40°C
Storage temperature : –20°C to +50°C
Humidity : No condense

Power sources : AC 100 V to 120 V(UC)
AC 110 V to 120 V/ AC 220 V to 240 V(CE)
Power frequency : 50/60 Hz
Power consumption : 4 A (MAX):UC
2.5 A (MAX):CE

• Install the unit in a location as dry and well-ventilated as possible.
• Do not install the unit in the following conditions.
High temperature room or near the heat source
Excessive dust or mechanical vibration
Intense magnetic and electric fields
A place subjected to direct sunlight or strong light

1-4-2. Outside Dimensions



(Unit : mm)

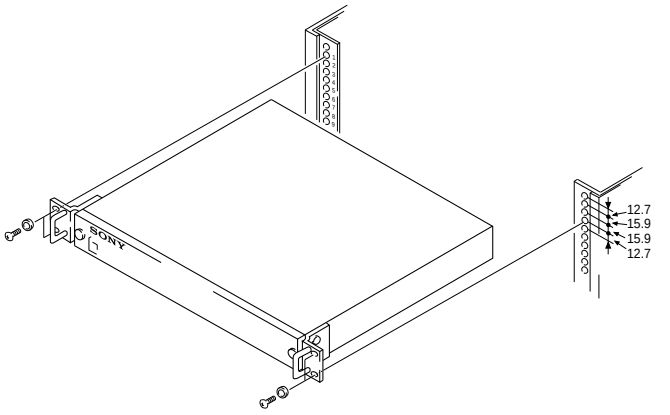
1-4-3. Rack Mounting

The unit can be mounted in a 19-inch EIA standard rack.
(The height of this unit is 1U.)

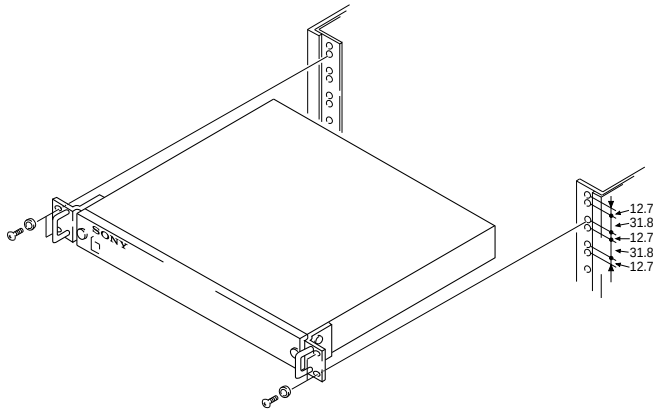
1. Without using the slide rails

Secure the right and left angles of the unit to the rack directly. The daily maintenance can perform in this condition.

• Universal-type Rack
Secure the unit to the rack with the four screws.

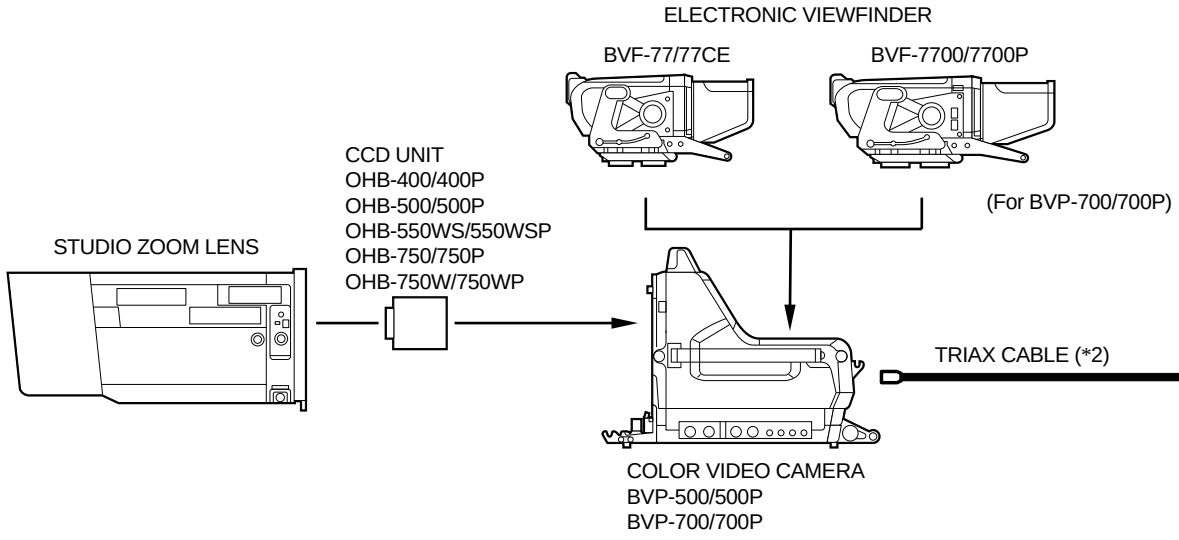


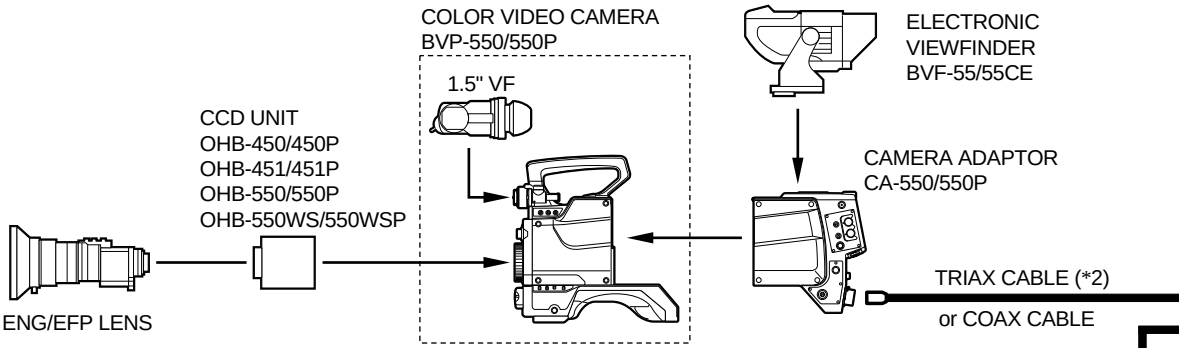
• Wide-type Rack
Secure the unit to the rack with the four screws.

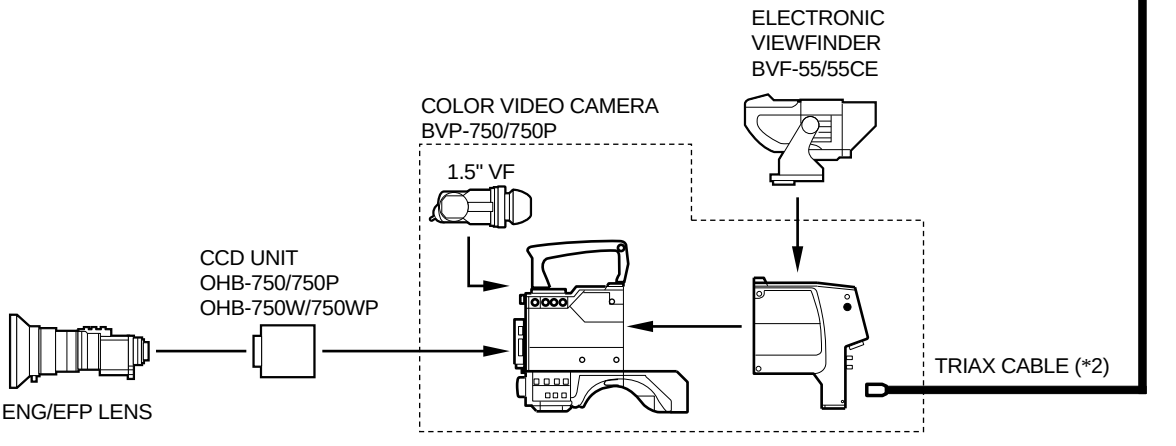


2. Using the slide rails
When using the slide rails for rack mounting, refer to system manual.

1-5. Instance of System Configuration

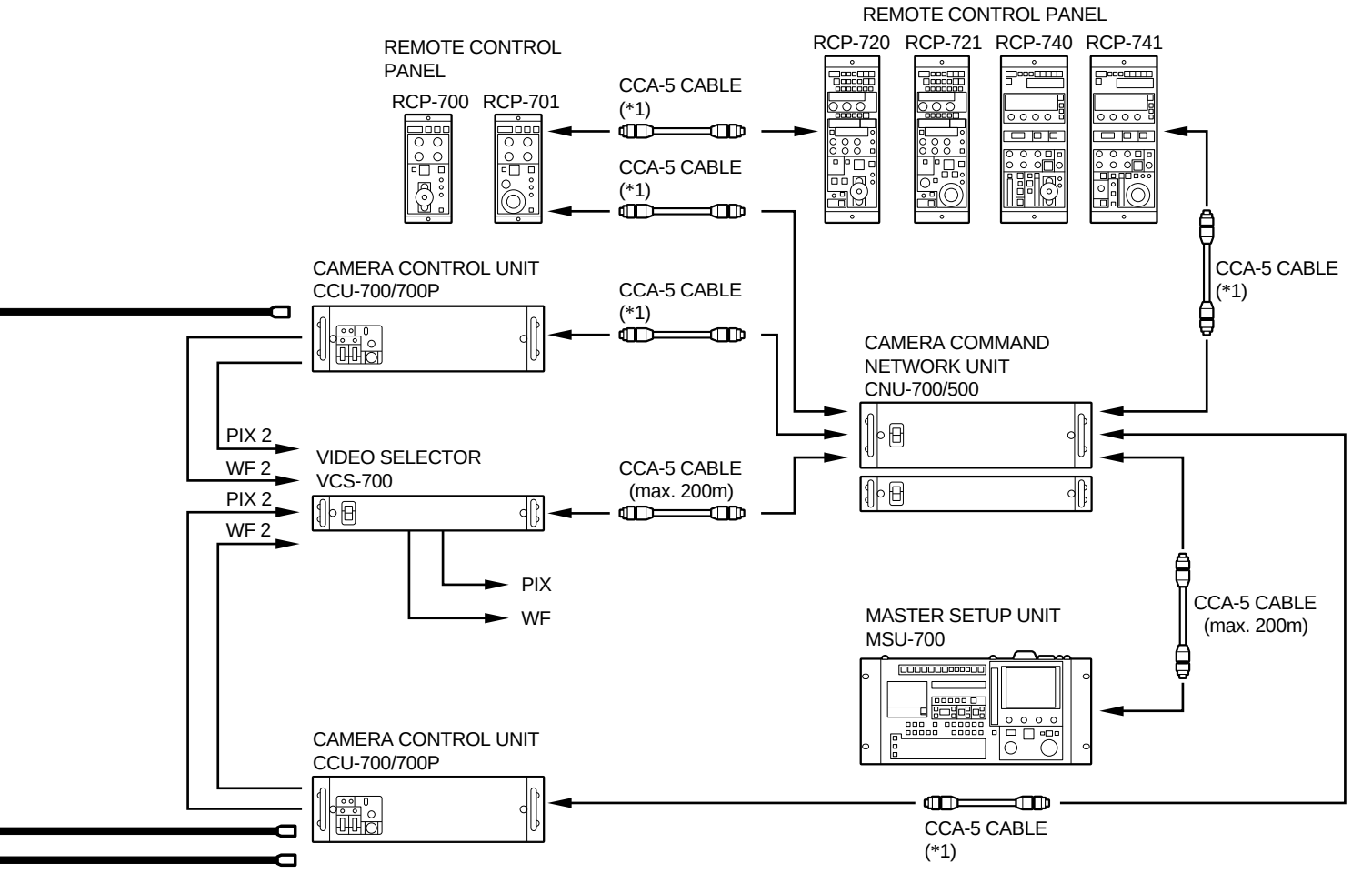




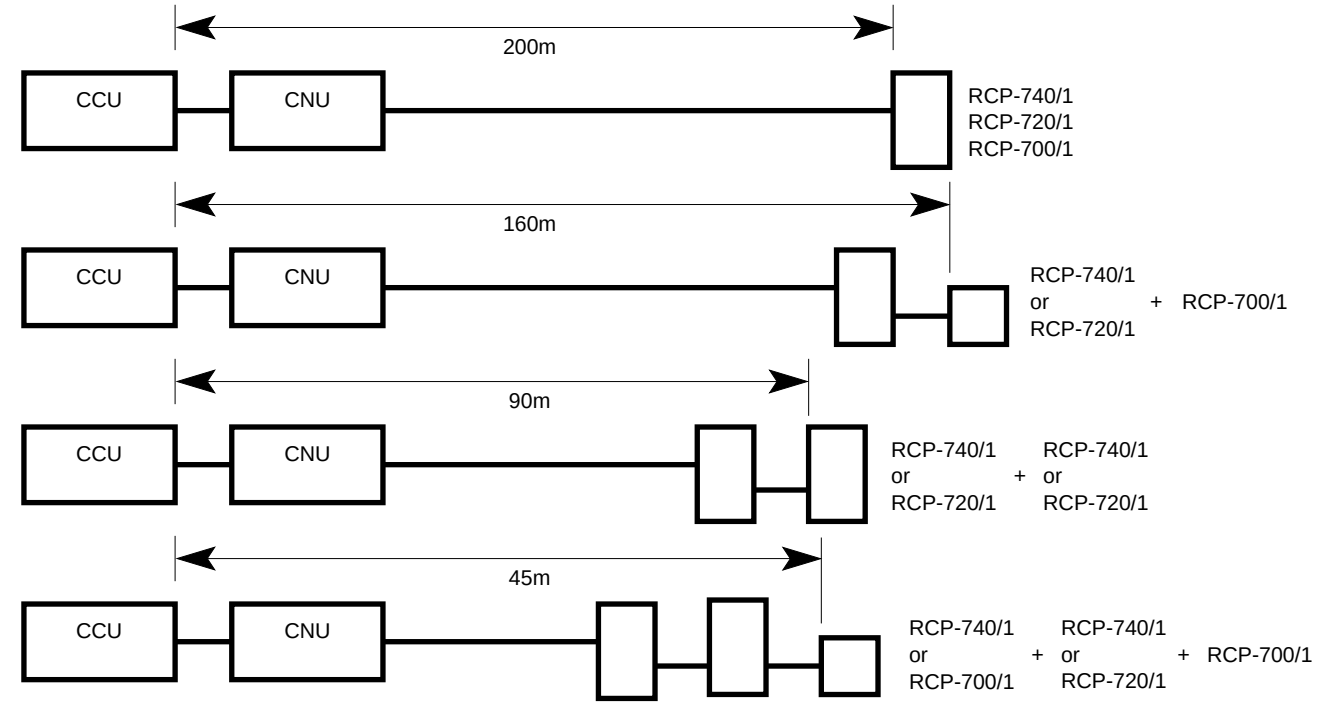


*2: TRIAX CABLE LENGTH

Diameter	Maximun length
8.5 mm	1000 mm
14.5 mm	2000 mm



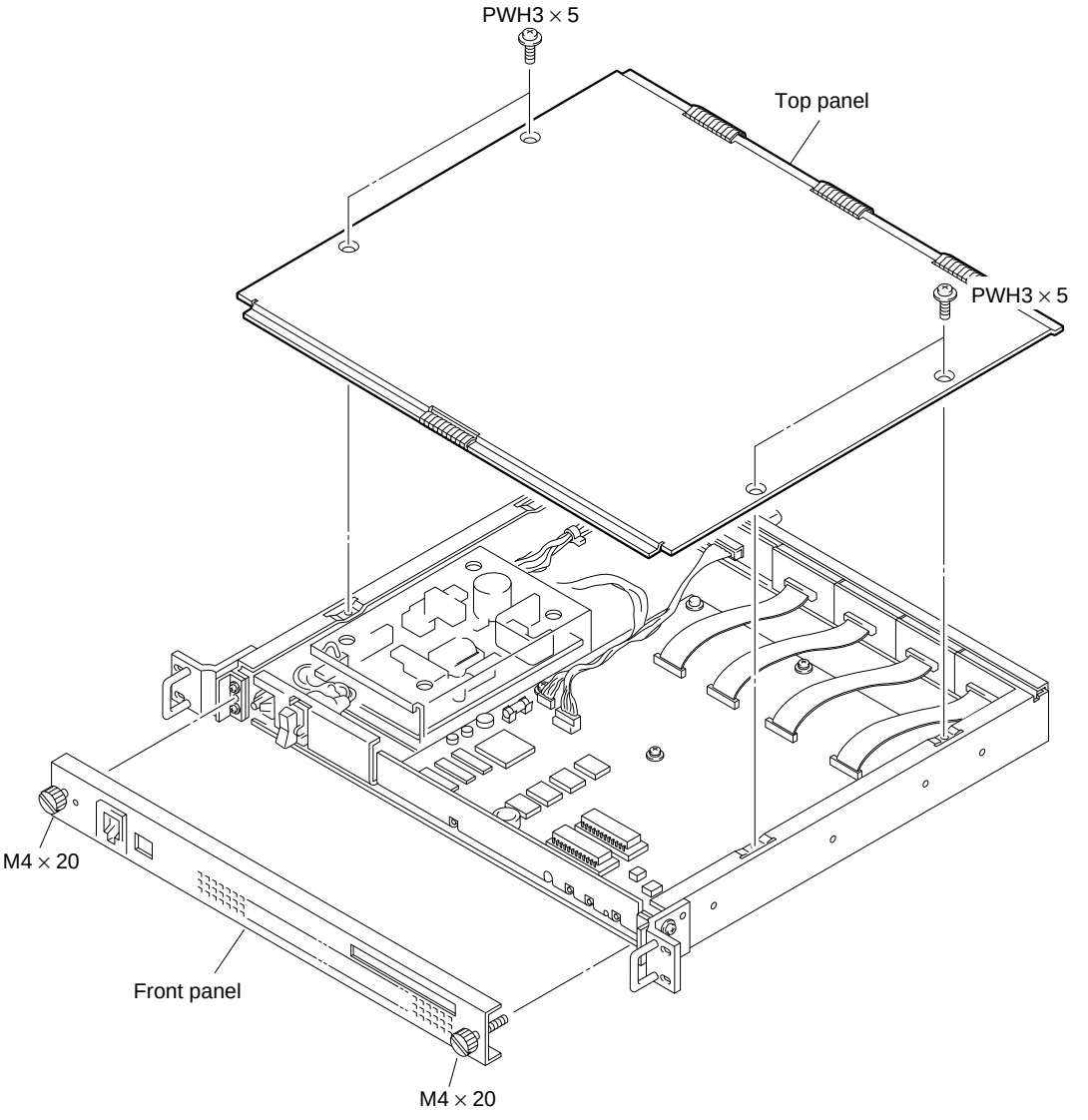
*1: CCA-5 CABLE LENGTH



Section 2
Service Overview

2-1. Removal of Cabinet

1. Loosen the two screws and remove the front panel.
2. Remove the four screws and remove the top panel.



2-2. Disconnecting/ Connecting Flexible Card Wire

The four flexible card wires are used between the AT-100 board and CN-125A/125B boards.Be careful not to bend these wires. This shortens the wire life.

Disconnecting

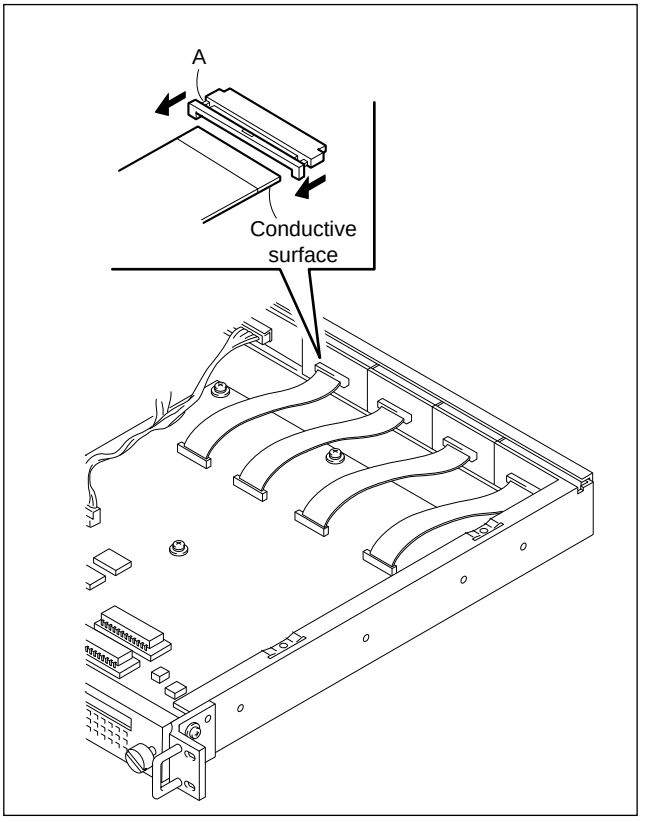
1. Turn off the power of the unit.
2. Slide portion A in the direction of the arrow and disconnect the flexible card wire.

Connecting

Note

- Be careful not to insert the flexible card wire obliquely.
- Check that the conductive surface of the flexible card wire is not soiled with dust.

1. Slide portion A in the direction of the arrow and insert the flexible card wire as far as it will go into connector with the conductive surface of the wire put down.
2. Slide portion A in the opposite direction of the arrow and lock each connector.



2-3. Notes on Switching Regulator

1. Since the unit has a switching regulator, beware of electric shock the primary side.
2. If the power supply unit is operated under no load conditions, the power unit will be broken-down.Never check the power supply unit independently.

2-4. Fuse Replacement

2-4-1. Fuse on AT-100 Board

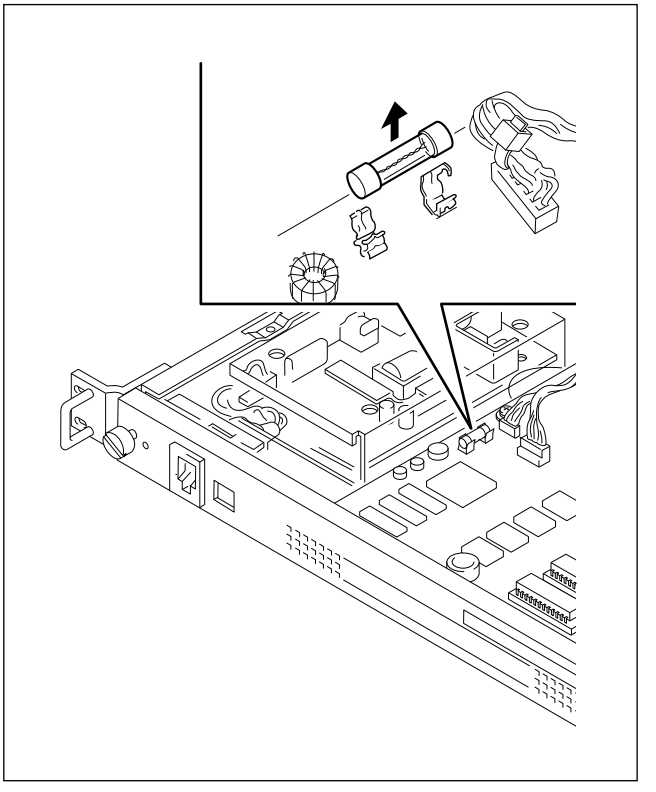
The AT-100 board has the fuse which shuts off the power. If any fault occorrs or flows the rush current in the unit, the fuse will be burnt-out.

Remove the top panel and replace the fuse on the AT-100 board. (Refer to “2-1. Removal of Cabinet”.)

When replacing the fuse, remedy the cause of troulbe.

Note

- The fuse should be replaced after the power switch is turned off and the plug of the power cord is pulled out.
- The fuse should be replaced with specified parts described on Section 3 Spare Parts.



2-4-2. Fuse in Switching Regulator

The switching regulator has the fuse which shuts off the powers. If any fault occurrs or flows the rush current in the unit, the fuse will be burnt-out.

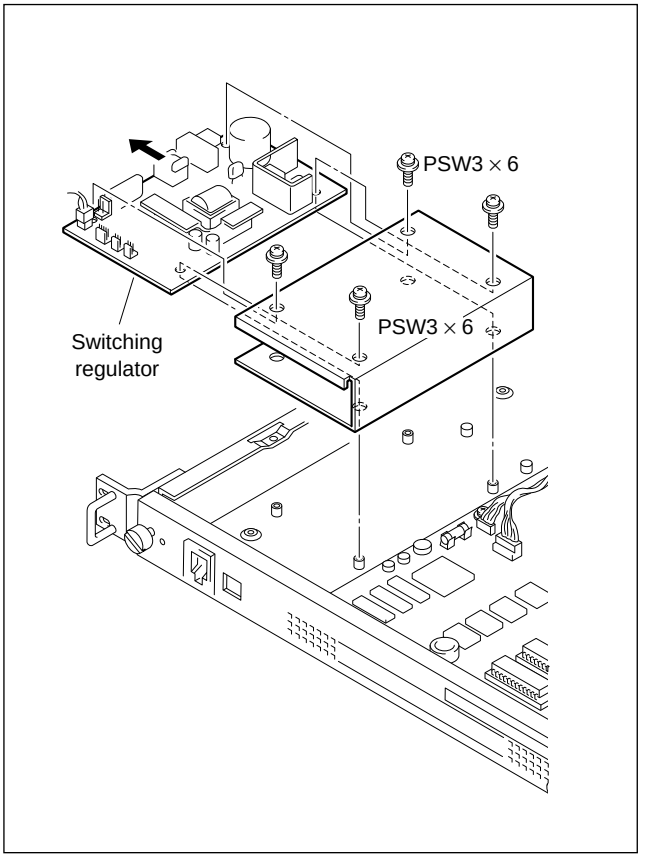
Note

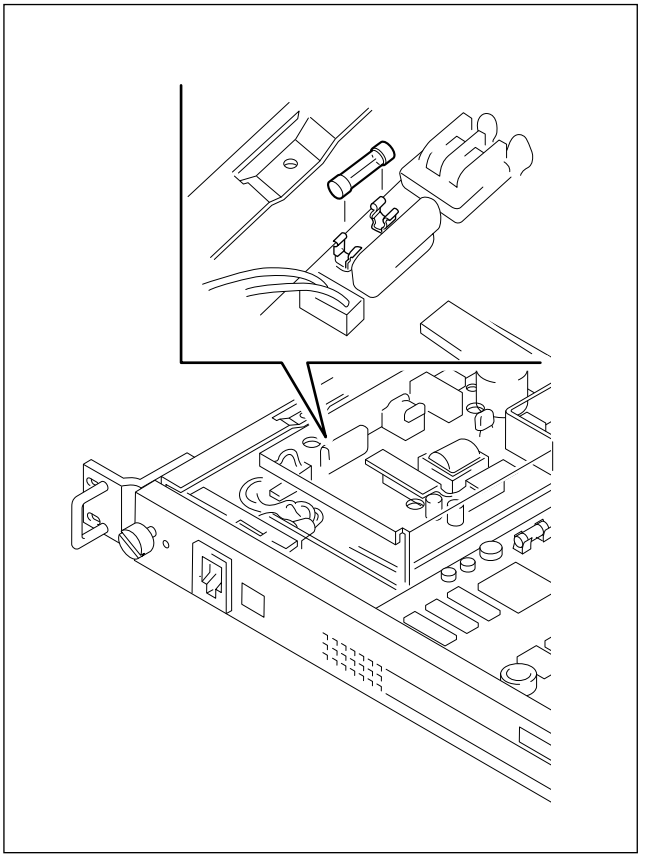
The fuse should be replaced after the power switch is turned off and the plug of the power cord is pulled out.

1. Remove the top panel. (Refer to “2-1. Removal of Cabinet”.)
2. Remove the four screws and remove the switching regulator.

Note

- When replacing the fuse, remedy the cause of trouble.
- The fuse should be replaced with specified parts described on “FRAME” of Section 3 Spare Parts.





2-5. Notes on Service

2-5-1. Note on Replacement of Parts

1. WARNING Safety Related Components Warning

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

Parts marked with "o" at SP(Supply Code) column of the spare parts list may be not stocked. Therefore, the delivery date will be delayed.

4. Units Representation

The following represented units are changed or omitted in writing.

Units		Representation
Capacitance	μF	uF
Inductance	μH	uH
Resistance	Ω	Abbreviation
Temperature	°C	XXX-DEG-C

5. Destination Representation

The part indicated "For J/UC/CE" in the spare parts list is used in the unit written below.

For J : The part is used in a unit for Japan.
For UC: The part is used in a unit for U.S.A. and Canada.
For CE : The part is used in a unit for regions except the above countries.

2-5-2. P ROM IC

Each PROM IC on the PC board has a suffix to its original designation. This suffix may change according to improvement of IC. Never use and IC having no suffix to its original designation, because its memory has not been programmed. Each PROM IC is mounted on the PC board via socket.

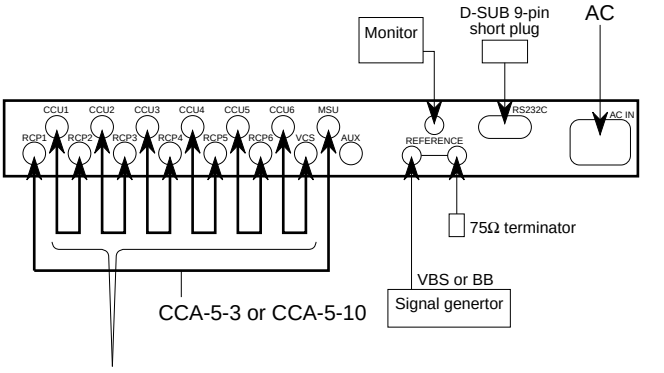
2-6. Self-Diagnosis

CNU-500 has a self-diagnosis program. The state of this unit can be diagnosed by using this self-diagnosis program.

2-6-1. Equipment Required

- 75Ω terminator
- Coaxial cable × 2
- Monitor (A B/W monitor can be used.)
- Signal generator (A VBS(*1) or BB(*2) signal can be output.)
  *1 VBS : Video Burst and Sync Signal
  *2 BB : Black Burst and Sycn Signal
- D-SUB 9-pin connector plug (male) whose pins 2 and 3, and pins 7 and 8 are shorted. (Referred to as a D-SUB 9-pin short plug hereafter.)
- CCA-5-3 cable or CCA-5-10 cable × 1

2-6-2. Connection



Connect between the connectors to be checked using a CCA-5 cable

2-6-3. Initial Setting

Set as described below before performing the self-diagnosis.
- Remove the top panel. (Refer to "2-1, Cabinet Removal".)

Panel switches of AT-100 board
- S1102(OPERATION) → NORMAL
- S3(MODE) → D
- S6(SYNC) → ON

Inside switches on AT-100 board
- S1100(H7) → S1100-2:ON
  Except S1100-2:OFF
- S2(H11) → all OFF

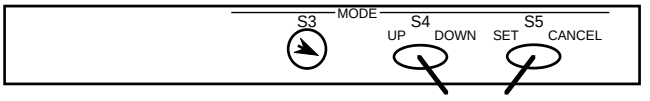
2-6-4. Self-Diagnosis Mode

Activate the self-diagnosis mode following the procedure below.

Note

The self-diagnosis mode of CNU-500 is completed when the system is terminated normally or when an error occurs.

- Turn on the power switch with the S4 and S5 switches (on the AT-100 board panel) set to the DOWN and SET positions, respectively.



a) ROM/RAM Check

- Release the switches when the monitor display shown in Fig. 1 appears.

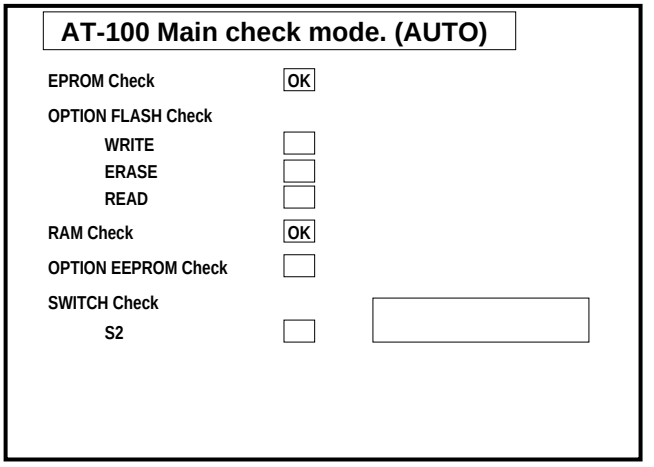


Fig. 1

Trouble 1 : Figure 1 is not displayed on the monitor screen.
Remedy : Confirm if IC45 and its peripheral block or switches S3, S4, and S5 are not defective.

Trouble 2 : The RAM check appears as an NG display.
Remedy : Confirm if IC9 to IC12 are not defective.

b) Switch Check

1. Confirm that Fig. 1 is displayed on the monitor screen, and set S2-1 to S2-8 sequentially to on (see in Fig. 2). Next, set S2-8 to S2-1 sequentially to off and confirm that the monitor display shown in Fig. 3 appears.

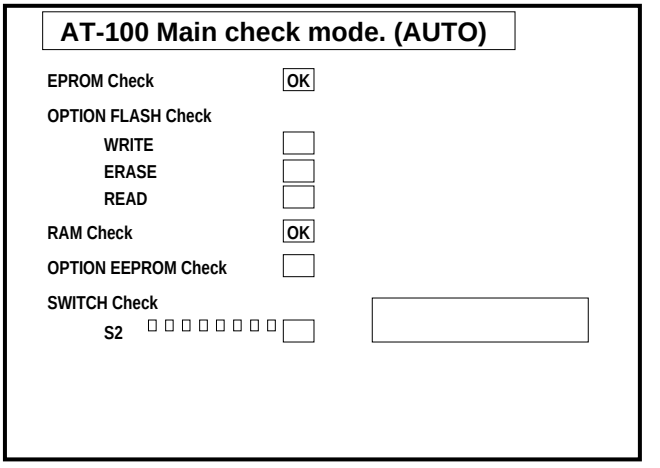


Fig. 2

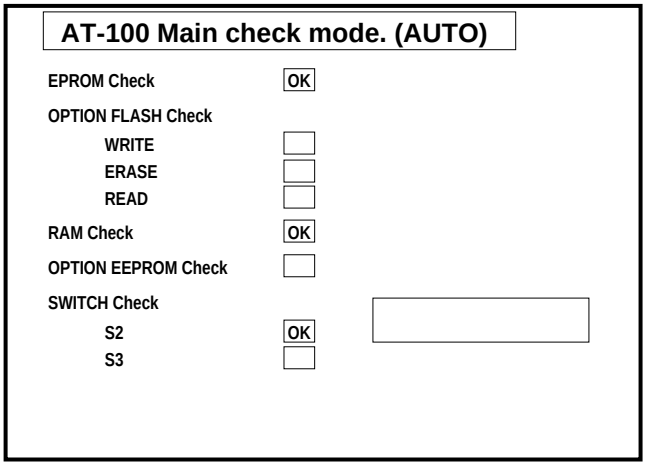


Fig. 3

Trouble 3 : S2 appears as an NG display or appears as neither an OK nor NG display.
Remedy : Confirm if S2 or its peripheral block is not defective.

2. Confirm that the display shown in Fig. 3 appears and set S3 switch (on the AT-100 board panel) to "0".
   Turn S3 switch (on the AT-100 board panel) in the order of 1, 2, 3, ... F and confirm that the display shown in Fig. 4 appears.

   Trouble 4 : S3 appears as an NG display or appears as neither an OK nor NG display.
   Remedy : Confirm if S3 or its peripheral block is not defective.

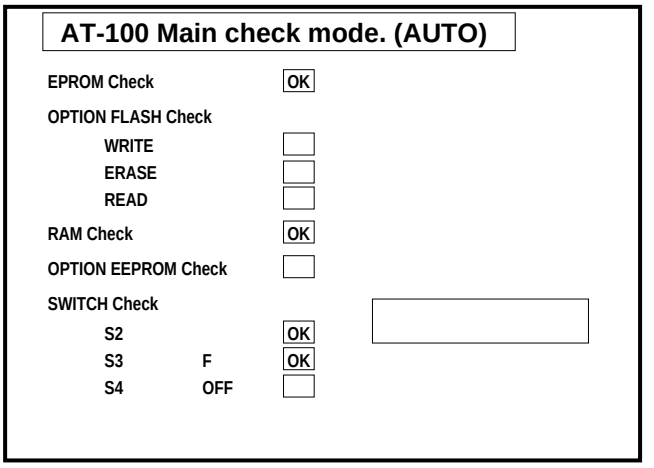


Fig. 4

3. Confirm that the display shown in Fig. 4 appears. Next, set S4 switch (on the AT-100 board panel) sequentially to the UP and DOWN positions and confirm that the display shown in Fig. 5 appears.

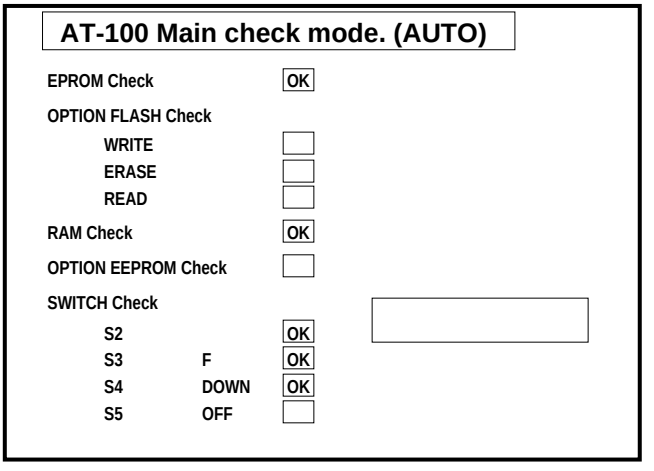


Fig. 5

   Trouble 5 : S4 appears as an NG display or appears as neither an OK nor NG display.
   Remedy : Confirm if S4 or its peripheral block is not defective.

4. Confirm that the display shown in Fig. 5 appears. Next, set S5 switch (on the AT-100 board panel) sequentially to the SET and CANCEL positions and confirm that the display shown in Fig. 6 appears.

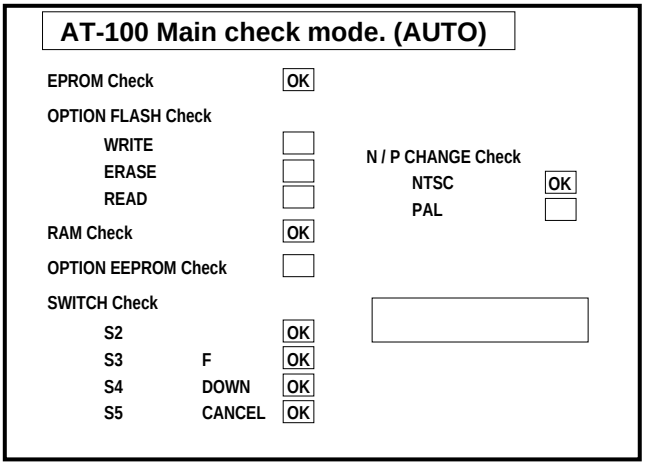


Fig. 6

   Trouble 6 : S5 appears as an NG display or appears as neither an OK nor NG display.
   Remedy : Confirm if S5 or its peripheral block is not defective.

c) Gen-lock Circuit Check

- Confirm that the display shown in Fig. 6 appears and throw S5 switch (on the AT-100 board panel) to the CANCEL position three times.

When an NTSC VBS or BB signal is input to the REFERENCE connector;
The display below appears. (Fig. 7)

NTSC OK
PAL NG

When a PAL VBS or BB signal is input to the REFERENCE connector;
The display below appears.

NTSC NG
PAL OK

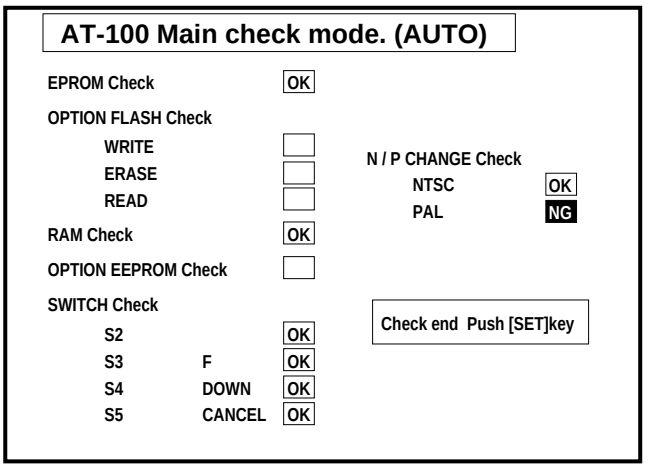


Fig. 7

Trouble 7 : The signal input to the REFERENCE connector appears as an NG display or the NG display stops halfway.

Remedy : Confirm that IC42 or its peripheral block (area enclosed with A-13, I-15, G-13, and G-15 on AT-100 printed circuit board), and CN1 harness are not defective.

d) Command Block Check

1. Confirm that the display shown in Fig. 7 appears and set S5 switch (on the AT-100 board panel) to the SET position. Release S5 switch (on the AT-100 board panel) just when the display shown in Fig. 8 appears. Confirm that an OK message is displayed at the point where a CCA-5 cable is connected and that an NG message is displayed at the point where it is not connected.

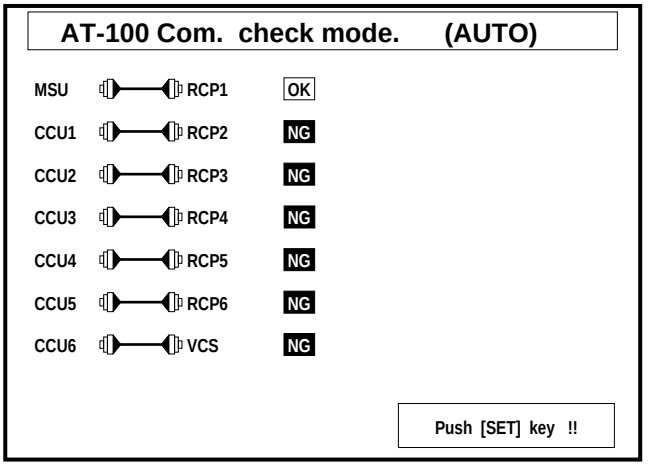


Fig. 8

Trouble 8 : An NG message is displayed at the point where a CCA-5 cable is connected.

Remedy : The MSU ↔ RCP1 display is NG.
→ Confirm if IC902 and its peripheral block, and IC305 and its peripheral block are not defective.
The CCU1 ↔ RCP2 display is NG.
→ Confirm if IC304 and its peripheral block, and IC405 and its peripheral block are not defective.
The CCU2 ↔ RCP3 display is NG.
→ Confirm if IC404 and its peripheral block, and IC505 and its peripheral block are not defective.
The CCU3 ↔ RCP4 display is NG.
→ Confirm if IC504 and its peripheral block, and IC605 and its peripheral block are not defective.
The CCU4 ↔ RCP5 display is NG.
→ Confirm if IC604 and its peripheral block, and IC705 and its peripheral block are not defective.
The CCU5 ↔ RCP6 display is NG.
→ Confirm if IC704 and its peripheral block, and IC805 and its peripheral block are not defective.
The CCU6 ↔ VCS display is NG.
→ Confirm if IC804 and its peripheral block, and IC903 and its peripheral block are not defective.

2. Disconnect the CCA-5 cable (that connects between the MSU and RCP1 connectors) at the RCP1 connector, then connect it to the AUX connector. Set S5 switch (on the board panel) to the SET position and release S5 switch when the MSU ↔ AUX display appears on the monitor screen. (See in Fig. 9.)

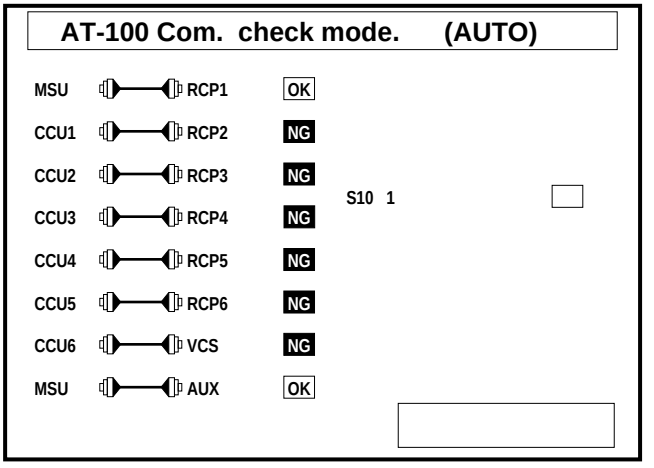


Fig. 9

Trouble 9 : The MSU ↔ AUX display is NG.
Remedy : Confirm if IC1003 and its peripheral block are not defective.

Trouble 10 : A CCA-5 cable is connected, but MSU ↔ RCP1 to MSU ↔ AUX all appear as an NG display.
Remedy : Confirm if IC1200, IC1201, and IC1203 and their peripheral block are not defective.

3. After Fig. 9 is displayed, the display shown in Fig. 10 appears in a short time. (The self-diagnosis is then terminated.)

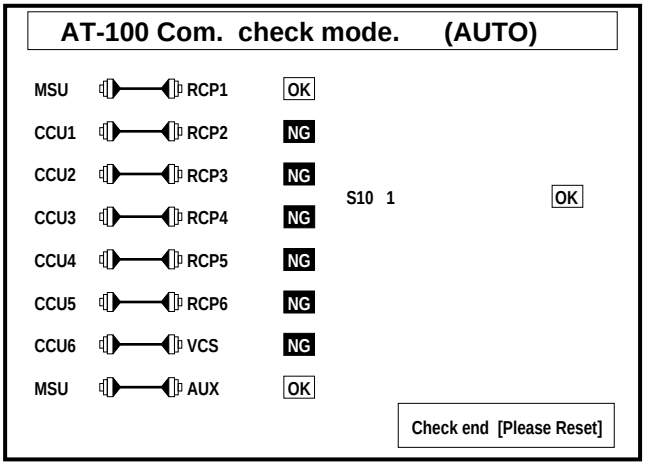


Fig. 10

Trouble 11 : A D-SUB 9-pin short plug is connected, but S101 appears as an NG display.
Remedy : Confirm if IC1105, IC1112, IC1101, and IC1102, and their peripheral block are not defective.

2-6-5. Switch Setting After Completion of Self-Diagnosis

Perform the following switch settings after completion of the self-diagnosis.

- POWER SWITCH (front panel) → OFF

Panel switches of AT-100 board
- S1102 (OPERATION) → NORMAL
- S3 (MODE) → 0
- S6 (SYNC) → ON

Inside switches on AT-100 board
- S1100 (H7) → S1100-2: ON
  Except S1100-2: OFF

(For NTSC Model)
- S2 (H11) → All OFF

(For PAL Model)
- S2 (H11) → S2-1: ON
  Except S2-1: OFF

After switch resetting, attach the top panel in the reverse order of removal.

Section 3
Spare Parts

3-1. Notes on Repair Parts

1. WARNING Safety Related Components Warning

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

Parts marked with “o” at SP (Supply Code) column of the spare parts list may be not stocked. Therefore, the delivery date will be delayed.

4. Units Representation

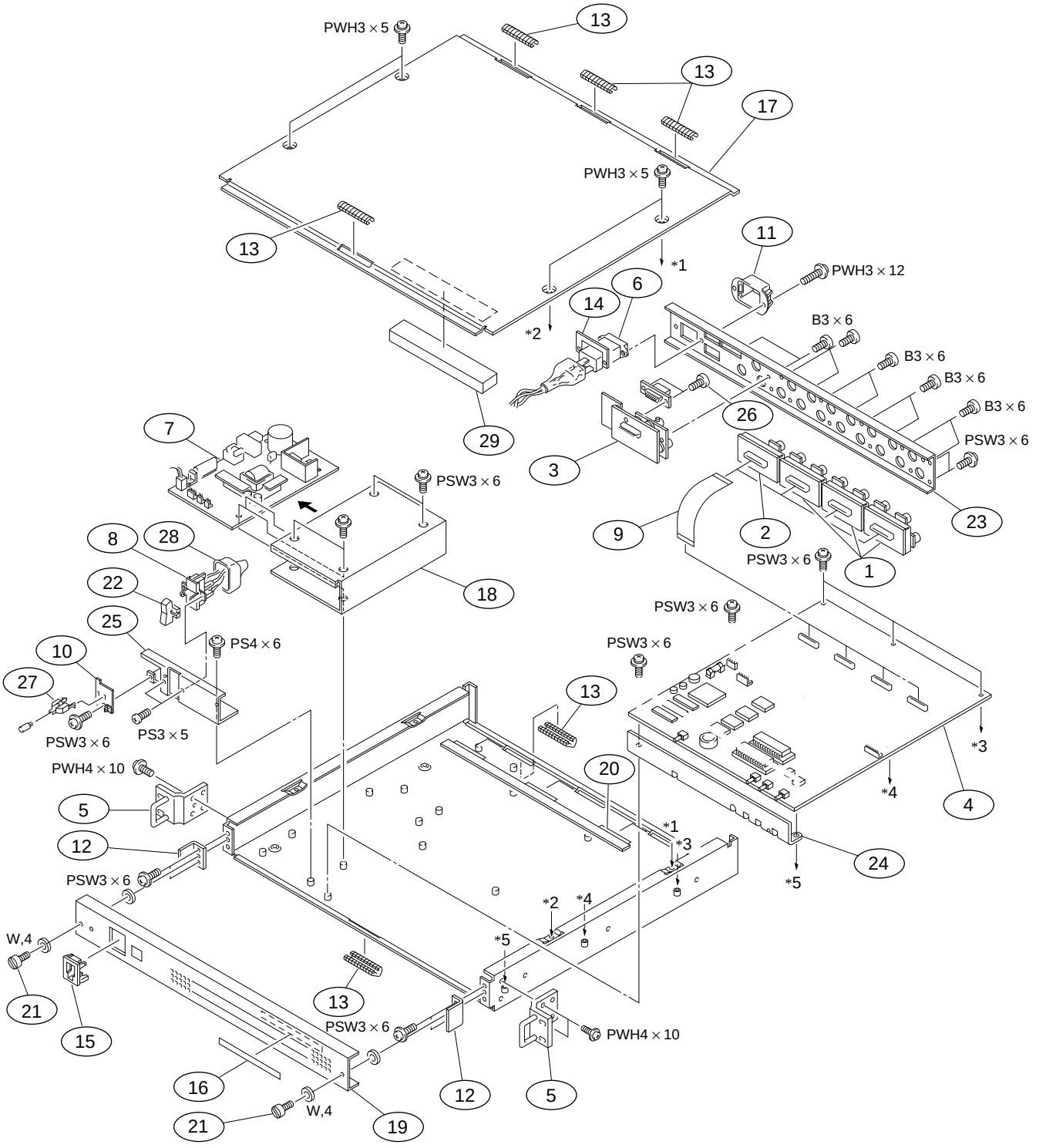
The following represented units are changed or omitted in writing.

Units		Representation
Capacitance	μF	uF
Inductance	μH	uH
Resistance	Ω	Abbreviation

5. Destination Representation

The part indicated “For J/UC/CE” in the spare parts list is used in the unit written below.
For J : The part is used in a unit for Japan.
For UC : The part is used in a unit for U.S.A. and Canada.
For CE : The part is used in a unit for regions except the above countries.

3-2. Exploded View



No.	Part No.	SP	Description
1	A-8269-711-A	o	MOUNTED CIRCUIT BOARD, CN-1258A
2	A-8269-712-A	o	MOUNTED CIRCUIT BOARD, CN-1258B
3	A-8269-713-A	o	MOUNTED CIRCUIT BOARD, CN-1259
4	A-8269-797-A	o	MOUNTED CIRCUIT BOARD, AT-100
5	X-2127-214-3	o	ANGLE (1U) ASSY, RACK
6	⚠ 1-251-378-11	s	INLET, AC 3P FEMALE
7	⚠ 1-413-769-11	s	SWITCHING REGULATOR (MRW-150)
8	⚠ 1-570-384-11	s	SWITCH, ROCKER (AC POWER)
9	1-590-489-11	s	WIRE, FLEXIBLE CARD (25 CORE)
10	1-653-368-11	o	PRINTED CIRCUIT BOARD LE-139
11	2-990-241-02	s	HOLDER (A), PLUG
12	3-165-390-02	o	BOARD, SIDE, FRONT
13	3-175-260-01	o	FINGER, SNAP
14	3-625-620-00	s	BRACKET, AC CONNECTOR
15	3-681-054-01	o	POWER SW GUARD
16	3-681-068-02	o	NAME LABEL
17	3-681-866-11	o	TOP PLATE
18	3-681-870-02	o	SHEET,INSULATING
19	3-685-553-02	o	FRONT PANEL
20	3-687-084-01	o	SHEET,INSULATE
21	3-687-887-01	s	SCREW (M4X20)
22	3-688-814-01	s	CAP, SWITCH
23	3-692-665-02	o	REAR PANEL S/N 10001-10050(J) 30001-30005(UC) 40001-40055(CE)
23	3-692-665-03	o	REAR PANEL S/N 10051- (J) 30006- (UC) 40056- (CE)
24	3-693-340-01	o	PCB PANEL
25	3-693-972-01	o	PLATE,SW
26	3-711-228-01	o	STANDOFF, D SUB CONN.
27	4-348-208-00	o	HOLDER, LED
28	4-381-806-01	o	COVER, SWITCH
29	4-915-938-01	o	CUSHION (D)

No.	Part No.	SP	Description
	7-621-561-39	s	+K 2.6X10
	7-623-925-01	s	WASHER 4.0, NYLON
	7-624-200-01	s	NUT, PUSH 1.5
	7-682-547-09	s	SCREW +B 3X6
	7-682-646-09	s	SCREW +PS 3X5
	7-682-660-09	s	SCREW +PS 4X6
	7-682-903-01	s	SCREW +PWH 3X5
	7-682-903-19	s	SCREW +PWH 3X6
	7-682-903-49	s	SCREW +PWH M3X12
	7-682-904-21	s	SCREW +PWH 4X10
	7-682-947-01	s	SCREW +PSW 3X6
	7-688-004-11	s	W 4, MIDDLE

3-3. Electrical Parts List

AT-100 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-797-A	o	MOUNTED CIRCUIT BOARD, AT-100
2pcs	1-533-223-11	s	HOLDER, FUSE
1pc	3-693-340-01	o	PCB PANEL
2pcs	7-682-903-01	s	SCREW +PWH 3X5
C2	1-163-038-91	s	CERAMIC 0.1uF 25V
C3	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C4	1-135-215-21	s	TANTALUM, CHIP 6.8uF 20% 16V
C6	1-163-038-91	s	CERAMIC 0.1uF 25V
C7	1-163-038-91	s	CERAMIC 0.1uF 25V
C8	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C9	1-163-038-91	s	CERAMIC 0.1uF 25V
C10	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C11	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C12	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C13	1-163-038-91	s	CERAMIC 0.1uF 25V
C14	1-163-038-91	s	CERAMIC 0.1uF 25V
C15	1-163-038-91	s	CERAMIC 0.1uF 25V
C16	1-163-038-91	s	CERAMIC 0.1uF 25V
C18	1-163-038-91	s	CERAMIC 0.1uF 25V
C19	1-163-038-91	s	CERAMIC 0.1uF 25V
C23	1-163-038-91	s	CERAMIC 0.1uF 25V
C25	1-163-038-91	s	CERAMIC 0.1uF 25V
C26	1-163-038-91	s	CERAMIC 0.1uF 25V
C27	1-163-038-91	s	CERAMIC 0.1uF 25V
C28	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C29	1-163-038-91	s	CERAMIC 0.1uF 25V
C30	1-163-038-91	s	CERAMIC 0.1uF 25V
C31	1-163-038-91	s	CERAMIC 0.1uF 25V
C32	1-163-038-91	s	CERAMIC 0.1uF 25V
C33	1-163-038-91	s	CERAMIC 0.1uF 25V
C34	1-163-038-91	s	CERAMIC 0.1uF 25V
C35	1-163-038-91	s	CERAMIC 0.1uF 25V
C36	1-163-038-91	s	CERAMIC 0.1uF 25V
C37	1-163-038-91	s	CERAMIC 0.1uF 25V
C38	1-163-038-91	s	CERAMIC 0.1uF 25V
C39	1-163-038-91	s	CERAMIC 0.1uF 25V
C40	1-163-038-91	s	CERAMIC 0.1uF 25V
C41	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C42	1-163-038-91	s	CERAMIC 0.1uF 25V
C48	1-163-038-91	s	CERAMIC 0.1uF 25V
C49	1-163-038-91	s	CERAMIC 0.1uF 25V
C51	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C52	1-125-446-11	s	DOUBLE LAYERS 0.47FARAD 5.5V
C53	1-163-038-91	s	CERAMIC 0.1uF 25V
C54	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C55	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C60	1-163-038-91	s	CERAMIC 0.1uF 25V
C61	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C63	1-163-251-11	s	CERAMIC 100PF 5% 50V
C64	1-163-038-91	s	CERAMIC 0.1uF 25V
C65	1-135-160-21	s	TANTALUM, CHIP 15uF 10% 16V
C66	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C67	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C68	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C69	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C70	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C71	1-163-038-91	s	CERAMIC 0.1uF 25V
C72	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C73	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V

(AT-100 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C74	1-163-038-91	s	CERAMIC 0.1uF 25V
C75	1-163-133-00	s	CERAMIC 470PF 5% 50V
C76	1-163-038-91	s	CERAMIC 0.1uF 25V
C77	1-163-038-91	s	CERAMIC 0.1uF 25V
C78	1-163-038-91	s	CERAMIC 0.1uF 25V
C80	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C81	1-164-505-11	s	CERAMIC, CHIP 2.2uF 16V
C82	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C83	1-163-038-91	s	CERAMIC 0.1uF 25V
C84	1-163-038-91	s	CERAMIC 0.1uF 25V
C85	1-163-038-91	s	CERAMIC 0.1uF 25V
C86	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C87	1-128-394-11	s	ELECT 220uF 20% 10V
C88	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C89	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C90	1-163-038-91	s	CERAMIC 0.1uF 25V
C91	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C92	1-163-257-11	s	CERAMIC 180PF 5% 50V
C93	1-128-394-11	s	ELECT 220uF 20% 10V
C94	1-135-160-21	s	TANTALUM, CHIP 15uF 10% 16V
C95	1-163-038-91	s	CERAMIC 0.1uF 25V
C96	1-163-133-00	s	CERAMIC 470PF 5% 50V
C97	1-163-137-00	s	CERAMIC 680PF 5% 50V
C98	1-126-391-11	s	ELECT 47uF 20% 6.3V
C99	1-163-245-11	s	CERAMIC 56PF 5% 50V
C100	1-163-137-00	s	CERAMIC 680PF 5% 50V
C101	1-163-038-91	s	CERAMIC 0.1uF 25V
C102	1-163-038-91	s	CERAMIC 0.1uF 25V
C104	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C105	1-135-076-21	s	TANTALUM, CHIP 1uF 10% 35V
C106	1-128-394-11	s	ELECT 220uF 20% 10V
C107	1-163-275-11	s	CERAMIC 0.001uF 5% 50V
C108	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C110	1-163-038-91	s	CERAMIC 0.1uF 25V
C111	1-128-394-11	s	ELECT 220uF 20% 10V
C112	1-128-394-11	s	ELECT 220uF 20% 10V
C302	1-163-038-91	s	CERAMIC 0.1uF 25V
C303	1-126-391-11	s	ELECT 47uF 20% 6.3V
C304	1-163-038-91	s	CERAMIC 0.1uF 25V
C305	1-163-038-91	s	CERAMIC 0.1uF 25V
C306	1-163-038-91	s	CERAMIC 0.1uF 25V
C307	1-163-038-91	s	CERAMIC 0.1uF 25V
C308	1-163-038-91	s	CERAMIC 0.1uF 25V
C309	1-126-391-11	s	ELECT 47uF 20% 6.3V
C310	1-163-038-91	s	CERAMIC 0.1uF 25V
C311	1-163-038-91	s	CERAMIC 0.1uF 25V
C312	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C313	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C314	1-163-038-91	s	CERAMIC 0.1uF 25V
C315	1-163-038-91	s	CERAMIC 0.1uF 25V
C402	1-163-038-91	s	CERAMIC 0.1uF 25V
C403	1-126-391-11	s	ELECT 47uF 20% 6.3V
C404	1-163-038-91	s	CERAMIC 0.1uF 25V
C405	1-163-038-91	s	CERAMIC 0.1uF 25V
C406	1-163-038-91	s	CERAMIC 0.1uF 25V
C407	1-163-038-91	s	CERAMIC 0.1uF 25V
C408	1-163-038-91	s	CERAMIC 0.1uF 25V
C409	1-126-391-11	s	ELECT 47uF 20% 6.3V
C410	1-163-038-91	s	CERAMIC 0.1uF 25V

(AT-100 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C411	1-163-038-91	s	CERAMIC 0.1uF 25V
C412	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C413	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C414	1-163-038-91	s	CERAMIC 0.1uF 25V
C415	1-163-038-91	s	CERAMIC 0.1uF 25V
C502	1-163-038-91	s	CERAMIC 0.1uF 25V
C503	1-126-391-11	s	ELECT 47uF 20% 6.3V
C504	1-163-038-91	s	CERAMIC 0.1uF 25V
C505	1-163-038-91	s	CERAMIC 0.1uF 25V
C506	1-163-038-91	s	CERAMIC 0.1uF 25V
C507	1-163-038-91	s	CERAMIC 0.1uF 25V
C508	1-163-038-91	s	CERAMIC 0.1uF 25V
C509	1-126-391-11	s	ELECT 47uF 20% 6.3V
C510	1-163-038-91	s	CERAMIC 0.1uF 25V
C511	1-163-038-91	s	CERAMIC 0.1uF 25V
C512	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C513	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C514	1-163-038-91	s	CERAMIC 0.1uF 25V
C515	1-163-038-91	s	CERAMIC 0.1uF 25V
C602	1-163-038-91	s	CERAMIC 0.1uF 25V
C603	1-126-391-11	s	ELECT 47uF 20% 6.3V
C604	1-163-038-91	s	CERAMIC 0.1uF 25V
C605	1-163-038-91	s	CERAMIC 0.1uF 25V
C606	1-163-038-91	s	CERAMIC 0.1uF 25V
C607	1-163-038-91	s	CERAMIC 0.1uF 25V
C608	1-163-038-91	s	CERAMIC 0.1uF 25V
C609	1-126-391-11	s	ELECT 47uF 20% 6.3V
C610	1-163-038-91	s	CERAMIC 0.1uF 25V
C611	1-163-038-91	s	CERAMIC 0.1uF 25V
C612	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C613	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C614	1-163-038-91	s	CERAMIC 0.1uF 25V
C615	1-163-038-91	s	CERAMIC 0.1uF 25V
C702	1-163-038-91	s	CERAMIC 0.1uF 25V
C703	1-126-391-11	s	ELECT 47uF 20% 6.3V
C704	1-163-038-91	s	CERAMIC 0.1uF 25V
C705	1-163-038-91	s	CERAMIC 0.1uF 25V
C706	1-163-038-91	s	CERAMIC 0.1uF 25V
C707	1-163-038-91	s	CERAMIC 0.1uF 25V
C708	1-163-038-91	s	CERAMIC 0.1uF 25V
C709	1-126-391-11	s	ELECT 47uF 20% 6.3V
C710	1-163-038-91	s	CERAMIC 0.1uF 25V
C711	1-163-038-91	s	CERAMIC 0.1uF 25V
C712	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C713	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C714	1-163-038-91	s	CERAMIC 0.1uF 25V
C715	1-163-038-91	s	CERAMIC 0.1uF 25V
C802	1-163-038-91	s	CERAMIC 0.1uF 25V
C803	1-126-391-11	s	ELECT 47uF 20% 6.3V
C804	1-163-038-91	s	CERAMIC 0.1uF 25V
C805	1-163-038-91	s	CERAMIC 0.1uF 25V
C806	1-163-038-91	s	CERAMIC 0.1uF 25V
C807	1-163-038-91	s	CERAMIC 0.1uF 25V
C808	1-163-038-91	s	CERAMIC 0.1uF 25V
C809	1-126-391-11	s	ELECT 47uF 20% 6.3V
C810	1-163-038-91	s	CERAMIC 0.1uF 25V
C811	1-163-038-91	s	CERAMIC 0.1uF 25V
C812	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C813	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V

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Ref. No. or Q'ty	Part No.	SP	Description
C814	1-163-038-91	s	CERAMIC 0.1uF 25V
C815	1-163-038-91	s	CERAMIC 0.1uF 25V
C902	1-163-038-91	s	CERAMIC 0.1uF 25V
C903	1-126-391-11	s	ELECT 47uF 20% 6.3V
C904	1-163-038-91	s	CERAMIC 0.1uF 25V
C905	1-163-038-91	s	CERAMIC 0.1uF 25V
C906	1-163-038-91	s	CERAMIC 0.1uF 25V
C907	1-163-038-91	s	CERAMIC 0.1uF 25V
C908	1-163-038-91	s	CERAMIC 0.1uF 25V
C909	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C910	1-163-038-91	s	CERAMIC 0.1uF 25V
C911	1-163-038-91	s	CERAMIC 0.1uF 25V
C1002	1-163-038-91	s	CERAMIC 0.1uF 25V
C1003	1-126-391-11	s	ELECT 47uF 20% 6.3V
C1005	1-163-038-91	s	CERAMIC 0.1uF 25V
C1006	1-163-038-91	s	CERAMIC 0.1uF 25V
C1008	1-163-038-91	s	CERAMIC 0.1uF 25V
C1011	1-163-038-91	s	CERAMIC 0.1uF 25V
C1100	1-163-038-91	s	CERAMIC 0.1uF 25V
C1101	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C1102	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C1103	1-163-038-91	s	CERAMIC 0.1uF 25V
C1104	1-163-038-91	s	CERAMIC 0.1uF 25V
C1105	1-163-038-91	s	CERAMIC 0.1uF 25V
C1107	1-163-038-91	s	CERAMIC 0.1uF 25V
C1108	1-163-038-91	s	CERAMIC 0.1uF 25V
C1109	1-163-038-91	s	CERAMIC 0.1uF 25V
C1110	1-163-038-91	s	CERAMIC 0.1uF 25V
C1113	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C1114	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C1115	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C1116	1-163-038-91	s	CERAMIC 0.1uF 25V
C1118	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C1120	1-163-038-91	s	CERAMIC 0.1uF 25V
C1121	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C1122	1-163-038-91	s	CERAMIC 0.1uF 25V
C1123	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C1124	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C1125	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C1200	1-163-097-00	s	CERAMIC 15PF 5% 50V
C1201	1-163-097-00	s	CERAMIC 15PF 5% 50V
C1202	1-163-038-91	s	CERAMIC 0.1uF 25V
C1203	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C1204	1-163-038-91	s	CERAMIC 0.1uF 25V
C1205	1-163-038-91	s	CERAMIC 0.1uF 25V
C1206	1-135-216-11	s	TANTALUM, CHIP 10uF 20% 10V
C1207	1-163-038-91	s	CERAMIC 0.1uF 25V
CN1	1-506-473-11	o	CONNECTOR, 8P, MALE
CN2	1-506-471-11	o	CONNECTOR, 6P, MALE
CN3	1-766-705-31	o	CONNECTOR, FPC/FFC 25P
CN4	1-766-705-31	o	CONNECTOR, FPC/FFC 25P
CN5	1-766-705-31	o	CONNECTOR, FPC/FFC 25P
CN6	1-766-705-31	o	CONNECTOR, FPC/FFC 25P
CN8	1-506-475-11	o	CONNECTOR, 10P, MALE
CP1	1-760-267-11	s	OSCILLATOR, CRYSTAL 14.31818MHz
CP2	1-760-436-11	s	OSCILLATOR, CRYSTAL 14.25MHz
D1	8-719-105-51	s	DIODE RD3.6M-B1

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Ref. No. or Q'ty	Part No.	SP	Description
D2	8-719-157-23	s	DIODE RD4.7M-B
D3	8-719-800-76	s	DIODE 1SS226
D4	8-719-974-41	s	DIODE HLMP-6500-010
D300	8-719-800-76	s	DIODE 1SS226
D301	8-719-210-39	s	DIODE EC10QS-04
D302	8-719-210-33	s	DIODE EC10DS2
D400	8-719-800-76	s	DIODE 1SS226
D401	8-719-210-39	s	DIODE EC10QS-04
D402	8-719-210-33	s	DIODE EC10DS2
D500	8-719-800-76	s	DIODE 1SS226
D501	8-719-210-39	s	DIODE EC10QS-04
D502	8-719-210-33	s	DIODE EC10DS2
D600	8-719-800-76	s	DIODE 1SS226
D601	8-719-210-39	s	DIODE EC10QS-04
D602	8-719-210-33	s	DIODE EC10DS2
D700	8-719-800-76	s	DIODE 1SS226
D701	8-719-210-39	s	DIODE EC10QS-04
D702	8-719-210-33	s	DIODE EC10DS2
D800	8-719-800-76	s	DIODE 1SS226
D801	8-719-210-39	s	DIODE EC10QS-04
D802	8-719-210-33	s	DIODE EC10DS2
D803	8-719-948-47	s	DIODE HSM88AS
F1	⚠ 1-576-228-11	s	FUSE (H.B.C.) 2A 250V
IC1	8-759-096-87	s	IC TC7WU04FU(TE12R)
IC2	8-759-973-71	s	IC TL7705CPS-B
IC3	8-759-050-39	s	IC SN74HC574APW-E20
IC4	8-759-397-99	o	IC 27C240-C5A100-4L-V1.01
IC5	8-759-397-98	o	IC 27C240-C5A100-5H-1.01
IC8	8-759-192-47	s	IC IDT79R3041-16J
IC9	8-759-294-63	s	IC M628128-20E1
IC10	8-759-294-63	s	IC M628128-20E1
IC11	8-759-294-63	s	IC M628128-20E1
IC12	8-759-294-63	s	IC M628128-20E1
IC13	8-759-049-78	s	IC SN74HC245APW-E05
IC14	8-759-049-78	s	IC SN74HC245APW-E05
IC15	8-759-049-78	s	IC SN74HC245APW-E05
IC16	8-759-049-78	s	IC SN74HC245APW-E05
IC17	8-759-049-83	s	IC SN74HC573BPW-E20
IC18	8-759-049-83	s	IC SN74HC573BPW-E20
IC19	8-759-049-83	s	IC SN74HC573BPW-E20
IC20	8-759-049-83	s	IC SN74HC573BPW-E20
IC25	8-759-339-94	o	IC 22V10B-CNUAT31V1.00
IC26	8-759-031-84	s	IC SC7S04F
IC27	8-759-049-96	s	IC SN74HC32APW-E20
IC28	8-759-082-58	s	IC TC7W08FU
IC33	8-759-360-67	o	IC 22V10B-CNUACKV1.00
IC34	8-759-049-70	s	IC SN74HC138APW
IC36	8-759-049-96	s	IC SN74HC32APW-E20
IC37	8-759-339-97	o	IC 22V10B-CNUAT62V1.00
IC38	8-759-080-30	s	IC MB81C4256A-70PFTN
IC39	8-759-906-53	s	IC TL062CPS
IC40	8-759-092-76	s	IC HA9P5020-5
IC41	8-759-242-78	s	IC TC7W02F
IC42	8-759-360-97	s	IC YGV606B-F
IC43	8-759-242-64	s	IC TC4W53F
IC44	8-759-987-27	s	IC LM1881M
IC45	8-759-064-65	s	IC TMP82C265BF-2
IC46	8-759-035-93	s	IC SC7S32F
IC47	8-759-239-34	s	IC TC74HC4538AF
IC48	8-759-242-64	s	IC TC4W53F

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Ref. No. or Q'ty	Part No.	SP	Description
IC49	8-759-239-34	s	IC TC74HC4538AF
IC50	8-759-009-02	s	IC MC14046BF
IC51	8-759-092-76	s	IC HA9P5020-5
IC52	8-759-906-53	s	IC TL062CPS
IC300	8-759-092-83	s	IC SN75158PS-ELL2000
IC301	8-759-051-10	s	IC SN74HC132APW-E05
IC302	8-759-011-65	s	IC MC74HC4053F
IC303	8-759-011-65	s	IC MC74HC4053F
IC304	8-759-277-99	s	IC CXD8889R
IC305	8-759-277-99	s	IC CXD8889R
IC306	8-759-231-53	s	IC TA7805S
IC400	8-759-092-83	s	IC SN75158PS-ELL2000
IC401	8-759-051-10	s	IC SN74HC132APW-E05
IC402	8-759-011-65	s	IC MC74HC4053F
IC403	8-759-011-65	s	IC MC74HC4053F
IC404	8-759-277-99	s	IC CXD8889R
IC405	8-759-277-99	s	IC CXD8889R
IC406	8-759-231-53	s	IC TA7805S
IC500	8-759-092-83	s	IC SN75158PS-ELL2000
IC501	8-759-051-10	s	IC SN74HC132APW-E05
IC502	8-759-011-65	s	IC MC74HC4053F
IC503	8-759-011-65	s	IC MC74HC4053F
IC504	8-759-277-99	s	IC CXD8889R
IC505	8-759-277-99	s	IC CXD8889R
IC506	8-759-231-53	s	IC TA7805S
IC600	8-759-092-83	s	IC SN75158PS-ELL2000
IC601	8-759-051-10	s	IC SN74HC132APW-E05
IC602	8-759-011-65	s	IC MC74HC4053F
IC603	8-759-011-65	s	IC MC74HC4053F
IC604	8-759-277-99	s	IC CXD8889R
IC605	8-759-277-99	s	IC CXD8889R
IC606	8-759-231-53	s	IC TA7805S
IC700	8-759-092-83	s	IC SN75158PS-ELL2000
IC701	8-759-051-10	s	IC SN74HC132APW-E05
IC702	8-759-011-65	s	IC MC74HC4053F
IC703	8-759-011-65	s	IC MC74HC4053F
IC704	8-759-277-99	s	IC CXD8889R
IC705	8-759-277-99	s	IC CXD8889R
IC706	8-759-231-53	s	IC TA7805S
IC800	8-759-092-83	s	IC SN75158PS-ELL2000
IC801	8-759-051-10	s	IC SN74HC132APW-E05
IC802	8-759-011-65	s	IC MC74HC4053F
IC803	8-759-011-65	s	IC MC74HC4053F
IC804	8-759-277-99	s	IC CXD8889R
IC805	8-759-277-99	s	IC CXD8889R
IC806	8-759-231-53	s	IC TA7805S
IC900	8-759-092-83	s	IC SN75158PS-ELL2000
IC901	8-759-051-10	s	IC SN74HC132APW-E05
IC902	8-759-277-99	s	IC CXD8889R
IC903	8-759-277-99	s	IC CXD8889R
IC1000	8-759-092-83	s	IC SN75158PS-ELL2000
IC1001	8-759-051-10	s	IC SN74HC132APW-E05
IC1003	8-759-277-99	s	IC CXD8889R
IC1100	8-759-058-54	s	IC TC7S00FU(TE85R)
IC1101	8-759-096-87	s	IC TC7WU04FU(TE12R)
IC1102	8-759-926-98	s	IC SN74HC4040ANS
IC1103	8-759-049-70	s	IC SN74HC138APW
IC1105	8-759-149-05	s	IC UPD71051GB-10-3B4
IC1106	8-759-049-70	s	IC SN74HC138APW

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Ref. No. or Q'ty	Part No.	SP	Description
IC1107	8-759-049-70	s	IC SN74HC138APW
IC1108	8-759-049-80	s	IC SN74HC541APW-E05
IC1109	8-759-049-80	s	IC SN74HC541APW-E05
IC1110	8-759-049-78	s	IC SN74HC245APW-E05
IC1112	8-759-521-07	s	IC MAX238CWG
IC1200	8-759-096-87	s	IC TC7WU04FU(TE12R)
IC1201	8-759-180-84	s	IC TC7W74F
IC1202	8-759-064-65	s	IC TMP82C265BF-2
IC1203	8-759-096-87	s	IC TC7WU04FU(TE12R)
IS4	1-526-662-21	o	SOCKET, IC (DP) 40P
IS5	1-526-662-21	o	SOCKET, IC (DP) 40P
L1	1-412-026-11	s	INDUCTOR CHIP 1UH
L2	1-412-026-11	s	INDUCTOR CHIP 1UH
L3	1-412-026-11	s	INDUCTOR CHIP 1UH
L4	1-412-026-11	s	INDUCTOR CHIP 1UH
L6	1-412-026-11	s	INDUCTOR CHIP 1UH
L7	1-412-026-11	s	INDUCTOR CHIP 1UH
L8	1-412-026-11	s	INDUCTOR CHIP 1UH
L11	1-412-031-11	s	INDUCTOR CHIP 47UH
L12	1-412-031-11	s	INDUCTOR CHIP 47UH
L13	1-412-031-11	s	INDUCTOR CHIP 47UH
L14	1-412-031-11	s	INDUCTOR CHIP 47UH
L15	1-408-782-11	s	INDUCTOR CHIP 27UH
L16	1-409-341-00	s	COIL, SN
L300	1-412-032-11	s	INDUCTOR CHIP 100UH
L301	1-412-026-11	s	INDUCTOR CHIP 1UH
L400	1-412-032-11	s	INDUCTOR CHIP 100UH
L401	1-412-026-11	s	INDUCTOR CHIP 1UH
L500	1-412-032-11	s	INDUCTOR CHIP 100UH
L501	1-412-026-11	s	INDUCTOR CHIP 1UH
L600	1-412-032-11	s	INDUCTOR CHIP 100UH
L601	1-412-026-11	s	INDUCTOR CHIP 1UH
L700	1-412-032-11	s	INDUCTOR CHIP 100UH
L701	1-412-026-11	s	INDUCTOR CHIP 1UH
L800	1-412-032-11	s	INDUCTOR CHIP 100UH
L801	1-412-026-11	s	INDUCTOR CHIP 1UH
L900	1-412-032-11	s	INDUCTOR CHIP 100UH
L901	1-412-026-11	s	INDUCTOR CHIP 1UH
L1000	1-412-032-11	s	INDUCTOR CHIP 100UH
L1001	1-412-026-11	s	INDUCTOR CHIP 1UH
L1100	1-412-026-11	s	INDUCTOR CHIP 1UH
L1101	1-412-026-11	s	INDUCTOR CHIP 1UH
L1102	1-412-026-11	s	INDUCTOR CHIP 1UH
L1103	1-412-026-11	s	INDUCTOR CHIP 1UH
L1200	1-412-026-11	s	INDUCTOR CHIP 1UH
L1201	1-412-026-11	s	INDUCTOR CHIP 1UH
PH300	8-749-924-62	s	PNOTO COUPLER PC410
PH301	8-749-924-62	s	PNOTO COUPLER PC410
PH302	8-749-924-62	s	PNOTO COUPLER PC410
PH303	8-749-924-62	s	PNOTO COUPLER PC410
PH400	8-749-924-62	s	PNOTO COUPLER PC410
PH401	8-749-924-62	s	PNOTO COUPLER PC410
PH402	8-749-924-62	s	PNOTO COUPLER PC410
PH403	8-749-924-62	s	PNOTO COUPLER PC410
PH500	8-749-924-62	s	PNOTO COUPLER PC410
PH501	8-749-924-62	s	PNOTO COUPLER PC410
PH502	8-749-924-62	s	PNOTO COUPLER PC410
PH503	8-749-924-62	s	PNOTO COUPLER PC410

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Ref. No. or Q'ty	Part No.	SP	Description
PH600	8-749-924-62	s	PNOTO COUPLER PC410
PH601	8-749-924-62	s	PNOTO COUPLER PC410
PH602	8-749-924-62	s	PNOTO COUPLER PC410
PH603	8-749-924-62	s	PNOTO COUPLER PC410
PH700	8-749-924-62	s	PNOTO COUPLER PC410
PH701	8-749-924-62	s	PNOTO COUPLER PC410
PH702	8-749-924-62	s	PNOTO COUPLER PC410
PH703	8-749-924-62	s	PNOTO COUPLER PC410
PH800	8-749-924-62	s	PNOTO COUPLER PC410
PH801	8-749-924-62	s	PNOTO COUPLER PC410
PH802	8-749-924-62	s	PNOTO COUPLER PC410
PH803	8-749-924-62	s	PNOTO COUPLER PC410
PH900	8-749-924-62	s	PNOTO COUPLER PC410
PH901	8-749-924-62	s	PNOTO COUPLER PC410
PH902	8-749-924-62	s	PNOTO COUPLER PC410
PH903	8-749-924-62	s	PNOTO COUPLER PC410
PH1002	8-749-924-62	s	PNOTO COUPLER PC410
PH1003	8-749-924-62	s	PNOTO COUPLER PC410
Q3	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q4	8-729-216-22	s	TRANSISTOR 2SA1162
Q5	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q6	8-729-027-38	s	TRANSISTOR DTA144EKA-T146
Q7	8-729-027-38	s	TRANSISTOR DTA144EKA-T146
Q8	8-729-216-22	s	TRANSISTOR 2SA1162
Q9	8-729-216-22	s	TRANSISTOR 2SA1162
Q10	8-729-216-22	s	TRANSISTOR 2SA1162
R1	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R4	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R5	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R6	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R7	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R8	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R9	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R10	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R11	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R12	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R13	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R14	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R15	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R16	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R17	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R18	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R19	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R20	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R21	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R22	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R23	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R24	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R25	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R26	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R27	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R28	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R29	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R30	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R31	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R32	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R33	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R34	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R35	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R36	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R37	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R38	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R39	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R40	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R41	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R42	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R43	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R44	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R45	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R46	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R47	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R48	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R49	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R50	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R51	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R52	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R53	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R54	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R55	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R56	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R57	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R58	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R59	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R60	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R61	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R62	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R63	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R64	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R65	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R66	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R67	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R68	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R69	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R70	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R71	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R72	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R73	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R74	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R75	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R76	1-216-025-91	s	METAL 100 5% 1/10W
R77	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R78	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R79	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R80	1-216-089-91	s	METAL 47K 5% 1/10W
R81	1-216-295-91	s	METAL, CHIP 0 5% 1/10W
R82	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R83	1-216-089-91	s	METAL 47K 5% 1/10W
R85	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R87	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R89	1-216-295-91	s	METAL, CHIP 0 5% 1/10W
R91	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R92	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R93	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R94	1-216-089-91	s	METAL 47K 5% 1/10W
R95	1-216-089-91	s	METAL 47K 5% 1/10W
R96	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R97	1-216-033-00	s	METAL, CHIP 220 5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R98	1-216-089-91	s	METAL 47K 5% 1/10W
R99	1-216-089-91	s	METAL 47K 5% 1/10W
R100	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R101	1-216-089-91	s	METAL 47K 5% 1/10W
R102	1-216-009-00	s	METAL, CHIP 22 5% 1/10W
R103	1-216-089-91	s	METAL 47K 5% 1/10W
R104	1-216-089-91	s	METAL 47K 5% 1/10W
R105	1-216-089-91	s	METAL 47K 5% 1/10W
R106	1-216-075-00	s	METAL, CHIP 12K 5% 1/10W
R107	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R108	1-216-025-91	s	METAL 100 5% 1/10W
R109	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R110	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R111	1-216-089-91	s	METAL 47K 5% 1/10W
R112	1-216-089-91	s	METAL 47K 5% 1/10W
R113	1-216-089-91	s	METAL 47K 5% 1/10W
R114	1-216-089-91	s	METAL 47K 5% 1/10W
R115	1-216-089-91	s	METAL 47K 5% 1/10W
R116	1-216-089-91	s	METAL 47K 5% 1/10W
R117	1-216-089-91	s	METAL 47K 5% 1/10W
R118	1-216-089-91	s	METAL 47K 5% 1/10W
R119	1-216-089-91	s	METAL 47K 5% 1/10W
R120	1-216-089-91	s	METAL 47K 5% 1/10W
R121	1-216-089-91	s	METAL 47K 5% 1/10W
R122	1-216-089-91	s	METAL 47K 5% 1/10W
R123	1-216-089-91	s	METAL 47K 5% 1/10W
R124	1-216-089-91	s	METAL 47K 5% 1/10W
R125	1-216-089-91	s	METAL 47K 5% 1/10W
R126	1-216-089-91	s	METAL 47K 5% 1/10W
R128	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R129	1-216-089-91	s	METAL 47K 5% 1/10W
R130	1-216-089-91	s	METAL 47K 5% 1/10W
R131	1-216-089-91	s	METAL 47K 5% 1/10W
R132	1-216-089-91	s	METAL 47K 5% 1/10W
R134	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R135	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R136	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R137	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R138	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R139	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R140	1-216-295-91	s	METAL, CHIP 0 5% 1/10W
R141	1-216-295-91	s	METAL, CHIP 0 5% 1/10W
R142	1-216-089-91	s	METAL 47K 5% 1/10W
R143	1-216-089-91	s	METAL 47K 5% 1/10W
R144	1-216-089-91	s	METAL 47K 5% 1/10W
R145	1-216-089-91	s	METAL 47K 5% 1/10W
R146	1-216-089-91	s	METAL 47K 5% 1/10W
R147	1-216-089-91	s	METAL 47K 5% 1/10W
R148	1-216-089-91	s	METAL 47K 5% 1/10W
R149	1-216-117-00	s	METAL, CHIP 680K 5% 1/10W
R150	1-216-089-91	s	METAL 47K 5% 1/10W
R151	1-216-049-91	s	METAL 1K 5% 1/10W
R152	1-216-089-91	s	METAL 47K 5% 1/10W
R153	1-216-089-91	s	METAL 47K 5% 1/10W
R154	1-216-089-91	s	METAL 47K 5% 1/10W
R155	1-216-089-91	s	METAL 47K 5% 1/10W
R156	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R157	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R158	1-216-089-91	s	METAL 47K 5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R159	1-216-049-91	s	METAL 1K 5% 1/10W
R160	1-216-025-91	s	METAL 100 5% 1/10W
R161	1-216-089-91	s	METAL 47K 5% 1/10W
R162	1-216-089-91	s	METAL 47K 5% 1/10W
R163	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R164	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R165	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R166	1-216-089-91	s	METAL 47K 5% 1/10W
R167	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R168	1-216-089-91	s	METAL 47K 5% 1/10W
R169	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R170	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R171	1-216-089-91	s	METAL 47K 5% 1/10W
R172	1-216-089-91	s	METAL 47K 5% 1/10W
R173	1-216-699-11	s	METAL, CHIP 100K 0.50% 1/10W
R174	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R175	1-216-089-91	s	METAL 47K 5% 1/10W
R176	1-216-089-91	s	METAL 47K 5% 1/10W
R177	1-216-089-91	s	METAL 47K 5% 1/10W
R178	1-216-656-11	s	METAL, CHIP 1.6K 0.5% 1/10W
R179	1-216-295-91	s	METAL, CHIP 0 5% 1/10W
R180	1-216-025-91	s	METAL 100 5% 1/10W
R181	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R182	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R183	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R184	1-208-806-11	s	CHIP, METAL 10K 0.50% 1/10W
R185	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R187	1-216-049-91	s	METAL 1K 5% 1/10W
R188	1-216-093-00	s	METAL, CHIP 68K 5% 1/10W
R189	1-216-022-00	s	METAL, CHIP 75 5% 1/10W
R191	1-216-089-91	s	METAL 47K 5% 1/10W
R192	1-216-089-91	s	METAL 47K 5% 1/10W
R193	1-216-089-91	s	METAL 47K 5% 1/10W
R194	1-216-089-91	s	METAL 47K 5% 1/10W
R195	1-216-089-91	s	METAL 47K 5% 1/10W
R196	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R198	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R300	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R301	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R302	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R303	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R304	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R305	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R306	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R307	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R308	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R309	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R310	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R311	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R312	1-216-089-91	s	METAL 47K 5% 1/10W
R313	1-216-089-91	s	METAL 47K 5% 1/10W
R314	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R315	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R316	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R317	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R318	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R319	1-216-089-91	s	METAL 47K 5% 1/10W
R321	1-218-634-11	s	METAL, CHIP 470 5% 1W
R322	1-218-634-11	s	METAL, CHIP 470 5% 1W

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Ref. No. or Q'ty	Part No.	SP	Description
R323	1-218-634-11	s	METAL, CHIP 470 5% 1W
R400	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R401	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R402	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R403	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R404	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R405	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R406	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R407	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R408	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R409	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R410	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R411	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R412	1-216-089-91	s	METAL 47K 5% 1/10W
R413	1-216-089-91	s	METAL 47K 5% 1/10W
R414	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R415	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R416	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R417	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R418	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R419	1-216-089-91	s	METAL 47K 5% 1/10W
R421	1-218-634-11	s	METAL, CHIP 470 5% 1W
R422	1-218-634-11	s	METAL, CHIP 470 5% 1W
R423	1-218-634-11	s	METAL, CHIP 470 5% 1W
R500	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R501	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R502	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R503	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R504	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R505	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R506	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R507	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R508	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R509	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R510	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R511	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R512	1-216-089-91	s	METAL 47K 5% 1/10W
R513	1-216-089-91	s	METAL 47K 5% 1/10W
R514	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R515	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R516	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R517	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R518	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R519	1-216-089-91	s	METAL 47K 5% 1/10W
R521	1-218-634-11	s	METAL, CHIP 470 5% 1W
R522	1-218-634-11	s	METAL, CHIP 470 5% 1W
R523	1-218-634-11	s	METAL, CHIP 470 5% 1W
R600	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R601	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R602	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R603	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R604	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R605	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R606	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R607	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R608	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R609	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R610	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R611	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R612	1-216-089-91	s	METAL 47K 5% 1/10W
R613	1-216-089-91	s	METAL 47K 5% 1/10W
R614	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R615	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R616	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R617	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R618	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R619	1-216-089-91	s	METAL 47K 5% 1/10W
R621	1-218-634-11	s	METAL, CHIP 470 5% 1W
R622	1-218-634-11	s	METAL, CHIP 470 5% 1W
R623	1-218-634-11	s	METAL, CHIP 470 5% 1W
R700	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R701	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R702	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R703	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R704	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R705	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R706	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R707	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R708	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R709	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R710	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R711	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R712	1-216-089-91	s	METAL 47K 5% 1/10W
R713	1-216-089-91	s	METAL 47K 5% 1/10W
R714	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R715	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R716	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R717	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R718	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R719	1-216-089-91	s	METAL 47K 5% 1/10W
R721	1-218-634-11	s	METAL, CHIP 470 5% 1W
R722	1-218-634-11	s	METAL, CHIP 470 5% 1W
R723	1-218-634-11	s	METAL, CHIP 470 5% 1W
R800	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R801	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R802	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R803	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R804	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R805	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R806	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R807	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R808	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R809	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R810	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R811	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R812	1-216-089-91	s	METAL 47K 5% 1/10W
R813	1-216-089-91	s	METAL 47K 5% 1/10W
R814	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R815	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R816	1-216-097-91	s	METAL, CHIP 100K 5% 1/10W
R817	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R818	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R819	1-216-089-91	s	METAL 47K 5% 1/10W
R821	1-218-634-11	s	METAL, CHIP 470 5% 1W
R822	1-218-634-11	s	METAL, CHIP 470 5% 1W
R823	1-218-634-11	s	METAL, CHIP 470 5% 1W
R900	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R901	1-216-001-00	s	METAL, CHIP 10 5% 1/10W

(AT-100 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R902	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R903	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R904	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R905	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R906	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R907	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R908	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R909	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R910	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R911	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R912	1-216-089-91	s	METAL 47K 5% 1/10W
R913	1-216-089-91	s	METAL 47K 5% 1/10W
R1003	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R1004	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R1005	1-216-029-00	s	METAL, CHIP 150 5% 1/10W
R1006	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R1007	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R1008	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R1009	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R1010	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R1011	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R1012	1-216-089-91	s	METAL 47K 5% 1/10W
R1100	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R1101	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R1102	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R1103	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R1104	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R1105	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R1106	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R1107	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R1108	1-216-121-91	s	METAL, CHIP 1M 5% 1/10W
R1109	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R1110	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R1111	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R1112	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R1113	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R1114	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R1115	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R1116	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R1117	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R1118	1-216-089-91	s	METAL 47K 5% 1/10W
R1119	1-216-025-91	s	METAL 100 5% 1/10W
R1120	1-216-025-91	s	METAL 100 5% 1/10W
R1121	1-216-025-91	s	METAL 100 5% 1/10W
R1122	1-216-025-91	s	METAL 100 5% 1/10W
R1123	1-216-025-91	s	METAL 100 5% 1/10W
R1124	1-216-025-91	s	METAL 100 5% 1/10W
R1125	1-216-025-91	s	METAL 100 5% 1/10W
R1126	1-216-025-91	s	METAL 100 5% 1/10W
R1127	1-216-089-91	s	METAL 47K 5% 1/10W
R1128	1-216-089-91	s	METAL 47K 5% 1/10W
R1129	1-216-025-91	s	METAL 100 5% 1/10W
R1130	1-216-025-91	s	METAL 100 5% 1/10W
R1131	1-216-025-91	s	METAL 100 5% 1/10W
R1132	1-216-025-91	s	METAL 100 5% 1/10W
R1133	1-216-025-91	s	METAL 100 5% 1/10W
R1134	1-216-025-91	s	METAL 100 5% 1/10W
R1135	1-216-025-91	s	METAL 100 5% 1/10W
R1136	1-216-025-91	s	METAL 100 5% 1/10W

(AT-100 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R1137	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R1139	1-216-025-91	s	METAL 100 5% 1/10W
R1140	1-216-025-91	s	METAL 100 5% 1/10W
R1141	1-216-025-91	s	METAL 100 5% 1/10W
R1142	1-216-025-91	s	METAL 100 5% 1/10W
R1143	1-216-025-91	s	METAL 100 5% 1/10W
R1144	1-216-025-91	s	METAL 100 5% 1/10W
R1145	1-216-025-91	s	METAL 100 5% 1/10W
R1146	1-216-025-91	s	METAL 100 5% 1/10W
R1149	1-216-025-91	s	METAL 100 5% 1/10W
R1150	1-216-025-91	s	METAL 100 5% 1/10W
R1151	1-216-025-91	s	METAL 100 5% 1/10W
R1152	1-216-025-91	s	METAL 100 5% 1/10W
R1153	1-216-089-91	s	METAL 47K 5% 1/10W
R1157	1-216-089-91	s	METAL 47K 5% 1/10W
R1163	1-216-089-91	s	METAL 47K 5% 1/10W
R1165	1-216-089-91	s	METAL 47K 5% 1/10W
R1167	1-216-089-91	s	METAL 47K 5% 1/10W
R1200	1-216-089-91	s	METAL 47K 5% 1/10W
R1201	1-216-089-91	s	METAL 47K 5% 1/10W
R1202	1-216-089-91	s	METAL 47K 5% 1/10W
R1203	1-216-089-91	s	METAL 47K 5% 1/10W
R1204	1-216-089-91	s	METAL 47K 5% 1/10W
R1205	1-216-089-91	s	METAL 47K 5% 1/10W
R1206	1-216-089-91	s	METAL 47K 5% 1/10W
R1207	1-216-089-91	s	METAL 47K 5% 1/10W
R1208	1-216-089-91	s	METAL 47K 5% 1/10W
R1209	1-216-089-91	s	METAL 47K 5% 1/10W
R1210	1-216-089-91	s	METAL 47K 5% 1/10W
R1211	1-216-089-91	s	METAL 47K 5% 1/10W
R1212	1-216-121-91	s	METAL, CHIP 1M 5% 1/10W
R1213	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R1214	1-216-089-91	s	METAL 47K 5% 1/10W
R1215	1-216-089-91	s	METAL 47K 5% 1/10W
R1216	1-216-089-91	s	METAL 47K 5% 1/10W
R1217	1-216-089-91	s	METAL 47K 5% 1/10W
R1218	1-216-089-91	s	METAL 47K 5% 1/10W
R1219	1-216-089-91	s	METAL 47K 5% 1/10W
R1220	1-216-089-91	s	METAL 47K 5% 1/10W
R1221	1-216-089-91	s	METAL 47K 5% 1/10W
R1222	1-216-089-91	s	METAL 47K 5% 1/10W
R1223	1-216-089-91	s	METAL 47K 5% 1/10W
R1224	1-216-295-91	s	METAL, CHIP 0 5% 1/10W
R1226	1-216-295-91	s	METAL, CHIP 0 5% 1/10W
R1228	1-216-025-91	s	METAL 100 5% 1/10W
RV1	1-241-266-11	s	RES, ADJ, METAL 50K
S2	1-692-271-21	s	SWITCH, SLIDE
S3	1-762-117-11	s	SWITCH, ROTARY
S4	1-762-120-11	s	SWITCH, TOGGLE
S5	1-762-120-11	s	SWITCH, TOGGLE
S6	1-692-530-11	s	SWITCH, TOGGLE
S1100	1-692-271-21	s	SWITCH, SLIDE
S1102	1-692-530-11	s	SWITCH, TOGGLE
X1100	1-579-539-11	s	VIBRATOR, CRYSTAL
X1200	1-760-435-11	s	VIBRATOR, CRYSTAL 18MHz

CN-1258 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-711-A	o	MOUNTED CIRCUIT BOARD, CN-1258A
1pc	A-8269-712-A	o	MOUNTED CIRCUIT BOARD, CN-1258B
CN1	1-573-727-11	s	CONNECTOR, FPC 25P
CN2	1-766-696-11	o	CONNECTOR, ROUND TYPE 8P
CN3	1-766-696-11	o	CONNECTOR, ROUND TYPE 8P
CN4	1-766-696-11	o	CONNECTOR, ROUND TYPE 8P (CN-1258A board only)
CN5	1-766-696-11	o	CONNECTOR, ROUND TYPE 8P
FB1	1-543-775-11	s	FILTER, EMI
FB2	1-543-775-11	s	FILTER, EMI
FB3	1-543-775-11	s	FILTER, EMI
FB4	1-543-775-11	s	FILTER, EMI
FB5	1-543-775-11	s	FILTER, EMI (CN-1258A board only)
FB6	1-543-775-11	s	FILTER, EMI (CN-1258A board only)
FB7	1-543-775-11	s	FILTER, EMI (CN-1258A board only)
FB8	1-543-775-11	s	FILTER, EMI (CN-1258A board only)
FB9	1-543-775-11	s	FILTER, EMI
FB10	1-543-775-11	s	FILTER, EMI
FB11	1-543-775-11	s	FILTER, EMI
FB12	1-543-775-11	s	FILTER, EMI
FB13	1-543-775-11	s	FILTER, EMI
FB14	1-543-775-11	s	FILTER, EMI
FB15	1-543-775-11	s	FILTER, EMI
FB16	1-543-775-11	s	FILTER, EMI
FB17	1-543-469-11	s	BEAD, FERRITE (CHIP) (CN-1258A board only)
FB18	1-543-469-11	s	BEAD, FERRITE (CHIP) (CN-1258A board only)
FB19	1-543-469-11	s	BEAD, FERRITE (CHIP) (CN-1258B board only)
FB20	1-543-469-11	s	BEAD, FERRITE (CHIP)

CN-1259 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8269-713-A	o	MOUNTED CIRCUIT BOARD, CN-1259
2pcs	3-711-228-01	o	STANDOFF, D SUB CONN.
CN1	1-506-478-11	o	CONNECTOR, 13P, MALE
CN2	1-563-890-21	s	SOCKET, D-SUB CONNECTOR 9P FEMALE
CN3	1-562-382-31	s	CONNECTOR, BNC
CN4	1-562-382-31	s	CONNECTOR, BNC
CN5	1-562-382-31	s	CONNECTOR, BNC
FB1	1-543-775-11	s	FILTER, EMI
FB2	1-543-775-11	s	FILTER, EMI
FB3	1-543-775-11	s	FILTER, EMI
FB4	1-543-775-11	s	FILTER, EMI
FB5	1-543-775-11	s	FILTER, EMI
FB6	1-543-775-11	s	FILTER, EMI
FB7	1-543-775-11	s	FILTER, EMI
FB8	1-543-775-11	s	FILTER, EMI
FB9	1-543-775-11	s	FILTER, EMI

3-4. Supplied Accessories

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LE-139 BOARD
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Ref. No.
or Q'ty  Part No.    SP Description

1pc      1-653-368-11 o PRINTED CIRCUIT BOARD, LE-139
1pc      4-348-208-00 o HOLDER, LED

CN1      1-506-481-11 o CONNECTOR, 2P, MALE

D1       8-719-980-40 s DIODE SLR-34MG3F
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SUPPLIED ACCESSORIES
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Ref. No.
or Q'ty  Part No.    SP Description

1pc    ⚠ 1-551-812-11 s CORD, POWER (FOR UC)
1pc    ⚠ 1-575-181-11 s CORD, POWER (FOR J)
1pc    ⚠ 1-590-910-11 s CORD SET, POWER (FOR CE)
1pc      1-750-686-11 s CONNECTOR, CONVERSION (3P-2P)
                        (FOR J)
1pc      2-990-242-01 s HOLDER (B), PLUG (FOR J,UC)
1pc      3-170-078-01 s HOLDER (B), PLUG (FOR CE)
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FRAME
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Ref. No.
or Q'ty  Part No.    SP Description

4pcs     1-590-489-11 s WIRE, FLEXIBLE CARD (25 CORE)
                          (AT-100 to CN-1258)

CN101  ⚠ 1-251-378-11 s INLET, AC 3P "AC IN"

       ⚠ 1-413-769-11 s SWITCHING REGULATOR (MRW-150)
F101   ⚠ 1-532-826-11 s FUSE, GLASS TUBE 2.5V 250V

S101   ⚠ 1-570-384-11 s SWITCH, ROCKER (AC POWER)

CN1F(to AT-100 board)
         1-569-201-11 o HOUSING, 8P
         1-569-194-11 o CONTACT, FEMALE AGW24-30
CN1F(to CN1259 board)
         1-569-206-11 o HOUSING, 13P
         1-569-194-11 o CONTACT, FEMALE AGW24-30
CN1F(to LE-139 board)
         1-569-195-11 o HOUSING, 2P
         1-569-194-11 o CONTACT, FEMALE AGW24-30
CN2F(to AT-100 board)
         1-569-199-11 o HOUSING, 6P
         1-569-194-11 o CONTACT, FEMALE AGW24-30
CN8F(to AT-100 board)
         1-569-203-11 o HOUSING, 10P
         1-569-194-11 o CONTACT, FEMALE AGW24-30

CP1F(to SWITCHING REGULATOR)
       ⚠ 1-750-171-11 o HOUSING, 2P
       ⚠ 1-569-595-11 o CONTACT, FEMALE AGW18-24
CP2F(to SWITCHING REGULATOR)
       ⚠ 1-565-787-21 o CONTACT, FEMALE AGW14-20
CP51F(to SWITCHING REGULATOR)
         1-561-148-00 o HOUSING, 4P
         1-535-243-21 o CONTACT, FEMALE AGW22-28
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Section 4
Semiconductor Pin Assignments

ここに記載されている半導体は，それぞれの機能を等価的に表したものです。　なお，互換性のない型名を併記していることがありますので，部品を交換するときは，Spare Partsの章を参照してください。
等価回路はＩＣメーカーのデータブックに従いました。

Semiconductors of which functions are equivalent are described here. For parts replacement, refer to the section of Spare Parts in this manual. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

Diode	PAGE
1SS226	4-2
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EC10QS-04	4-2
HLMP-6500	4-2
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RD ? ?M-B	4-2
RD ? ?M-B ?	4-2
SLR-34MG3F	4-2

Transistor	PAGE
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LM1881M	4-3
MAX238CWG	4-5
MB81C4256A	4-5
MC14046BF	4-5
MC74HC4053F	4-6
MC74HC541N	4-6
SC7S04F	4-6
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TC74HC138P	4-7
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TC7WU04FU	4-9
TL062CPS	4-9
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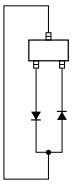
TMP82C265BF-2E	4-10
TMS27C240-12JL	4-9
UPD71051GB-10-3B4	4-12
YGV606-F	4-11

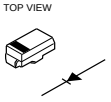
DIODE

TOP VIEW

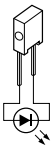


1SS226
HSM88AS

TOP VIEW

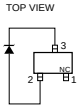


EC10DS2
EC10QS-04



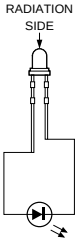
HLMP-6500;GREEN

TOP VIEW



RD ? ?M-B
RD ? ?M-B ?

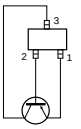
RADIATION SIDE



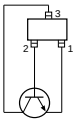
SLR-34MG3F;GREEN

TRANSISTOR

TOP VIEW

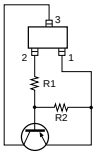


2SA1162G



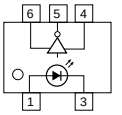
2SC1623

TOP VIEW



DTA144EKA (R1=47K, R2=47K)

Others

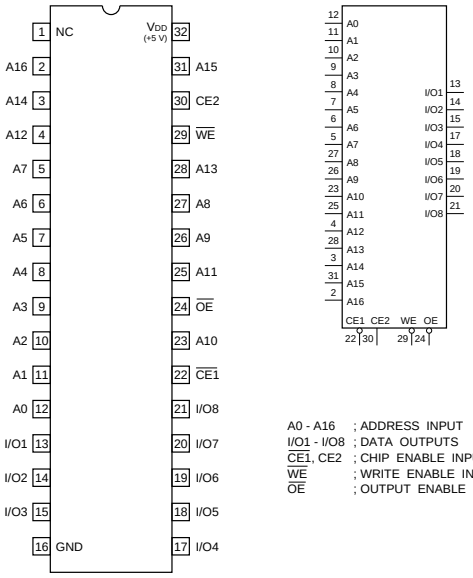


PC410 (SHARP) FLAT PACKAGE
OPIC-OUTPUT PHOTO COUPLER

IC

CXK581000P-10L (SONY)

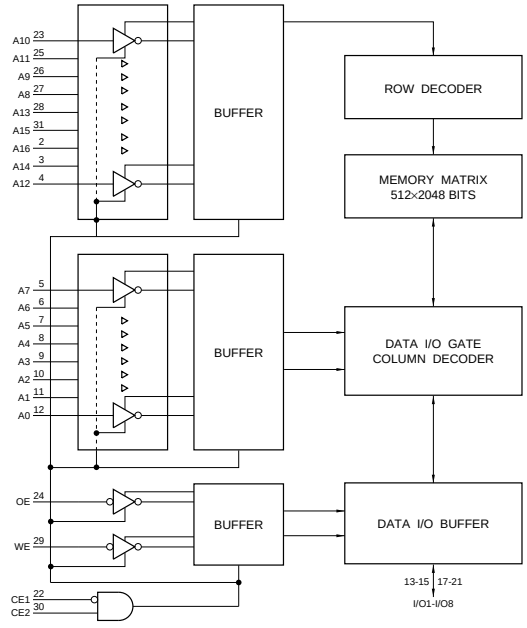
C-MOS 1M (131,072×8)-BIT STATIC RAM
- TOP VIEW -



A0 - A16 ; ADDRESS INPUT
I/O1 - I/O8 ; DATA OUTPUTS
$\overline{CE1}$, CE2 ; CHIP ENABLE INPUTS
$\overline{WE}$; WRITE ENABLE INPUT
$\overline{OE}$; OUTPUT ENABLE INPUT

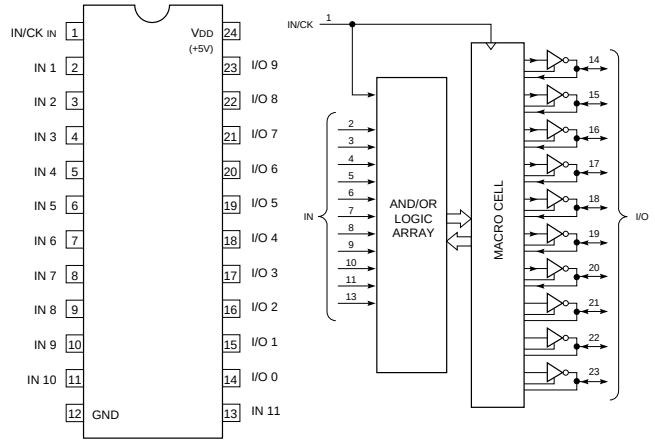
CE1	CE2	OE	WE	MODE	I/O TERMINAL
1	X	X	X	NOT SELECT	HI-Z
X	0	X	X	NOT SELECT	HI-Z
0	1	1	1	OUTPUT DISABLE	HI-Z
0	1	0	1	READ	DATA OUTPUT
0	1	X	0	WRITE	DATA INPUT

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE



GAL22V10B-25LP (LATTICE)

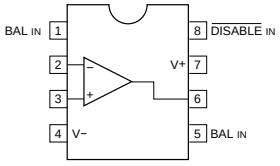
C-MOS ELECTRICALLY ERASABLE PROGRAMMABLE LOGIC DEVICE
—TOP VIEW—



∗ABOVE DIAGRAM SHOWS CONDITIONS BEFORE PROGRAMMING.

HA9P5020-5 (HARRIS) FLAT PACKAGE

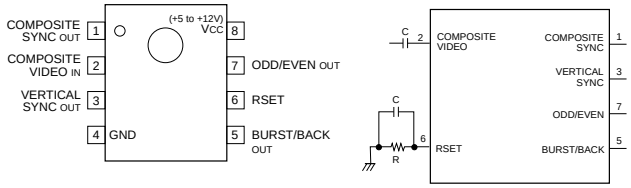
OPERATIONAL AMPLIFIER
-TOP VIEW-



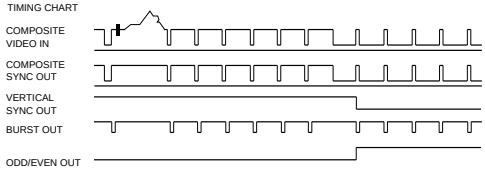
TYPE	V+	V−
EL2020CN	+5 to +18v	−5 to −18v
HA9P5020	+5 to +15v	−5 to −15v

LM1881M (NS) FLAT PACKAGE

VIDEO SYNC SEPARATOR
—TOP VIEW—



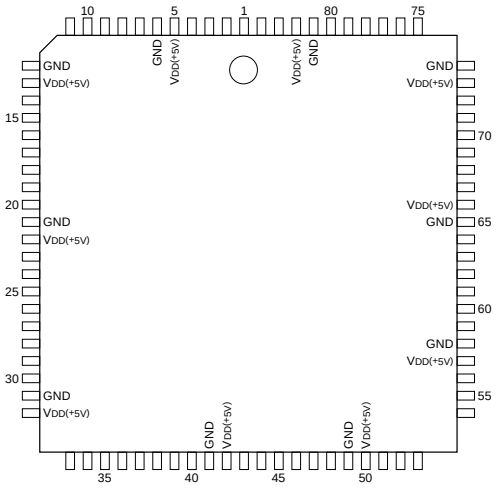
TIMING CHART



IDT79R3041-16J(IDT)

C-MOS RISC CPU

-TOP VIEW-



(VDD = +5V)

PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	I/O	A/D (23)	22	–	VDD	43	O	DATA EN	64	I/O	A/D (8)
2	I/O	A/D (24)	23	I	INT (4)	44	O	WR	65	–	GND
3	I/O	A/D (25)	24	I	INT (3)	45	O	RD	66	–	VDD
4	I/O	A/D (26)	25	I	SINT (2)	46	O	ALE	67	I/O	A/D (9)
5	–	VDD	26	I	SINT (1)	47	O	LAST	68	I/O	A/D (10)
6	–	GND	27	I	SINT (0)	48	O	DIAG	69	I/O	A/D (11)
7	I/O	A/D (27)	28	I/O	*1/IOSTROBE	49	–	GND	70	I/O	A/D (12)
8	I/O	A/D (28)	29	I/O	*2/EXTDATAEN	50	–	VDD	71	I/O	A/D (13)
9	I/O	A/D (29)	30	O	TC	51	O	ADDR (2)	72	I/O	A/D (14)
10	I/O	A/D (30)	31	–	GND	52	O	ADDR (3)	73	–	VDD
11	I/O	A/D (31)	32	–	VDD	53	O	BURST/WRNEAR	74	–	GND
12	–	GND	33	O	MEMSTROBE	54	I/O	A/D (0)	75	I/O	A/D (15)
13	–	VDD	34	I	BUSREQ	55	I/O	A/D (1)	76	I/O	A/D (16)
14	I	CLK IN	35	I	RDCEN	56	I/O	A/D (2)	77	I/O	A/D (17)
15	I	TRISTATE	36	I	ACK	57	–	VDD	78	I/O	A/D (18)
16	O	BE16 (1)	37	I	BUSERROR	58	–	GND	79	I/O	A/D (19)
17	O	BE16 (0)	38	I	RESET	59	I/O	A/D (3)	80	I/O	A/D (20)
18	O	ADDR (1)	39	O	BUSGNT	60	I/O	A/D (4)	81	–	GND
19	O	ADDR (0)	40	O	SYSCLK	61	I/O	A/D (5)	82	–	VDD
20	I	INT (5)	41	–	GND	62	I/O	A/D (6)	83	I/O	A/D (21)
21	–	GND	42	–	VDD	63	I/O	A/D (7)	84	I/O	A/D (22)

*1 ; SBRCOND (3) *2 ; SBRCOND (2)

INPUT

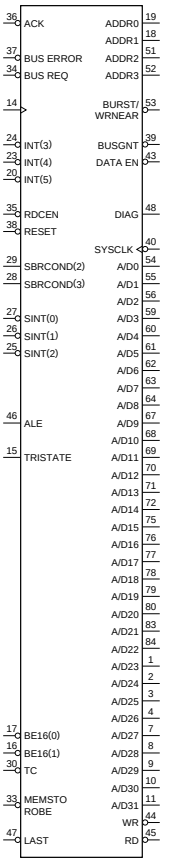
ACK	; ACKNOWLEDGE
BUSERROR	; BUS ERROR
BUSREQ	; DMA ARBITER BUS REQUEST
CLK	; MASTER CLOCK
INT(3)-(5)	; PROCESSOR INTERRUPT 3-5
RDCEN	; READ BUFFER CLOCK ENABLE
RESET	; MASTER PROCESSOR RESET
SBRCOND/IO STROBE	; BRANCH CONDITION PORT /IO STROBE
SBRCOND/EXT DATA EN	; BRANCH CONDITION PORT /EXT DATA EN
SINT(0)-(2)	; PROCESSOR INTERRUPT 0-2
TRISTATE	; TRL-STATE

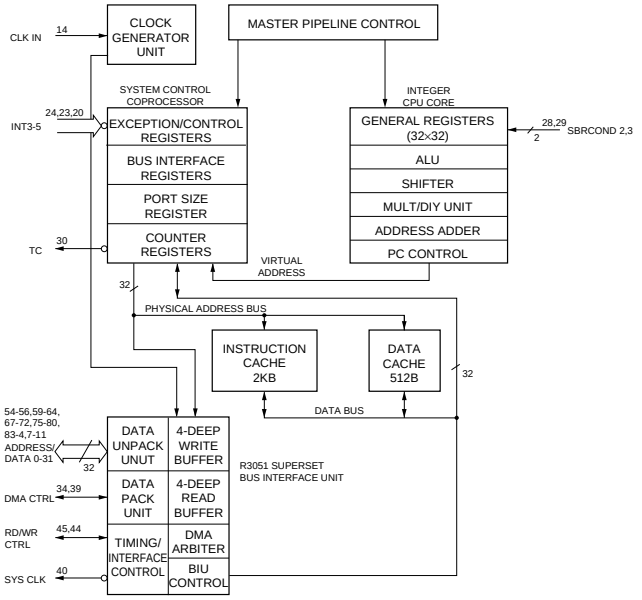
OUTPUT

ADDR0-3	; LOW ADDRESS 0-3
BE16(0),(1)	; BYTE ENABLE STROBES FOR 16-BIT MEMORY PORT 0,1
BURST/WRNEAR	; BURST TRANSFER WRITE NEAR
BUSGNT	; DMA ARBITER BUS GRANT
DATA EN	; DATA ENABLE
DIAG	; DIAGNOSTIC
LAST	; LAST DATUM IN MINI BURST
MEMSTROBE	; MEMORY STROBE
RD	; READ
SYSCLK	; SYSTEM REFERENCE CLOCK
TC	; TERMINAL COUNT

INPUT/OUTPUT

A/D0-31	; ADDRESS DATA 0-31
ALE	; ADDRSS LATCH ENABLE
WR	; WRITE

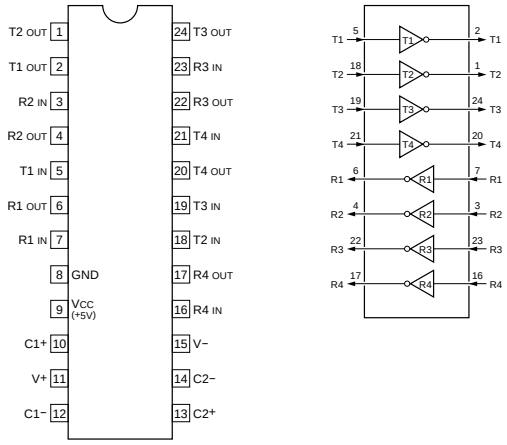




MAX238CWG (MAXIM) FLAT PACKAGE

+5V POWER RS-232 DRIVERS/RECEIVERS

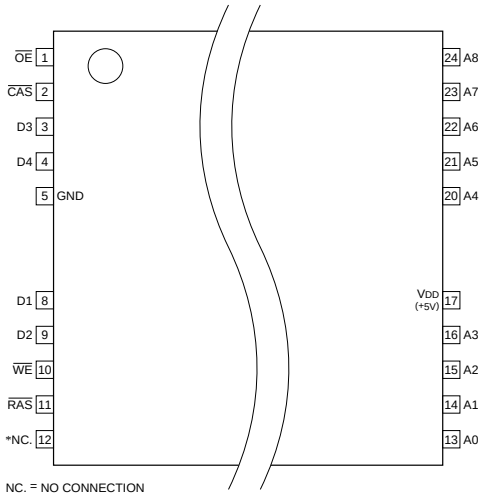
-TOP VIEW-



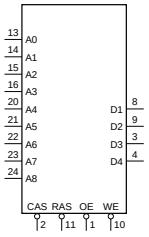
MB81C4256A (FUJITSU) FLAT PACKAGE

C-MOS 1M-BIT DYNAMIC RAM

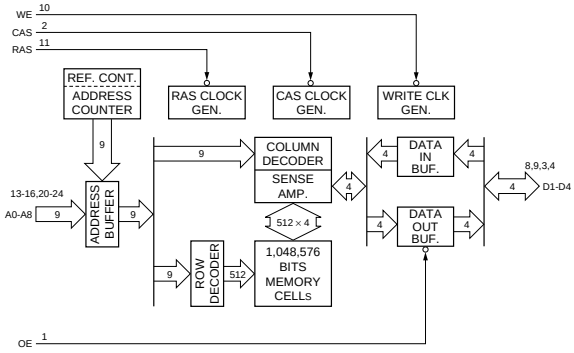
-TOP VIEW-



NC. = NO CONNECTION



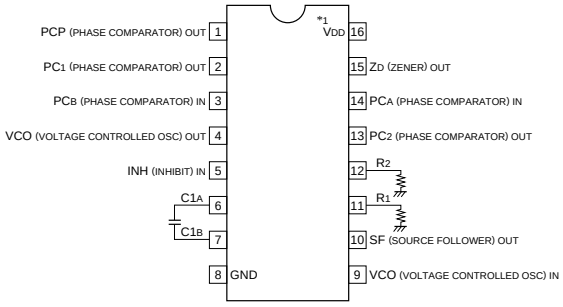
A0-A8 ; ADDRESS INPUT
CAS ; COLUMN ADDRESS STROBE
D1-D4 ; DATA IN/OUT
OE ; OUTPUT ENABLE
RAS ; ROW ADDRESS STROBE
WE ; WRITE ENABLE

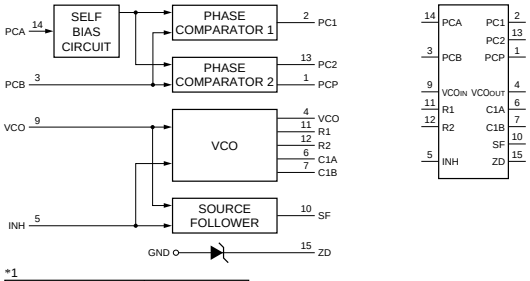


MC14046BF (MOTOROLA) FLAT PACKAGE

C-MOS PHASE LOCKED LOOP

-TOP VIEW-



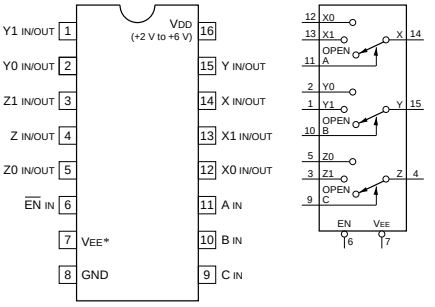


*1

TYPE	VDD
CD4046BE HD14046BP MC14046BCP MC14046BF TC4046BP	+3 to +8V
CD74HC4046AM MC74HC4046AF MC74HC4046AN	+2 to +6V

MC74HC4053F (MOTOROLA) FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
-TOP VIEW-



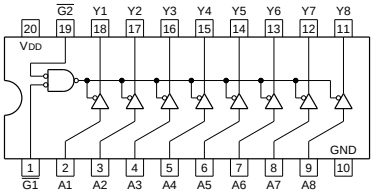
VEE* ; VDD – VEE = +3 V to +12 V
VEE ≦ GND

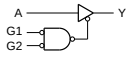
CONTROL INPUTS				ON CHANNEL		
EN	SELECT					
	C	B	A			
0	0	0	0	Z0	Y0	X0
0	0	0	1	Z0	Y0	X1
0	0	1	0	Z0	Y1	X0
0	0	1	1	Z0	Y1	X1
0	1	0	0	Z1	Y0	X0
0	1	0	1	Z1	Y0	X1
0	1	1	0	Z1	Y1	X0
0	1	1	1	Z1	Y1	X1
1	X	X	X	OPEN		

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MC74HC541N (MOTOROLA)

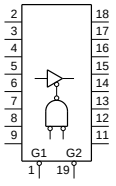
C-MOS BUFFERS AND LINE DRIVERS WITH 3-STATE OUTPUTS
- TOP VIEW -





G1	G2	A	Y
0	0	0	1
0	0	1	0
1	X	X	HI-Z
X	1	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

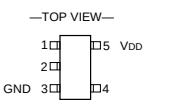


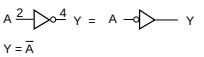
NOTE :

TYPE	VDD
TC74AC/TC74VHC	+2 to +5.5V
ABT/ACT/BCT/HCT/VHCT	+5V
OTHER TYPES	+2 to +6V

SC7S04F (MOTOROLA) CHIP PACKAGE

C-MOS INVERTER





Y = $\overline{A}$

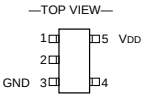
A	Y
0	1
1	0

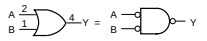
0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S04F 7SU04F 7SU04FU	+2 to +6V
4S69F 4SU69F	+3 to +18V
7SH04FU	+2 to +5.5V

SC7S32F (MOTOROLA) CHIP PACKAGE

C-MOS 2-INPUT OR GATE





Y = A + B = $\overline{\overline{A} \cdot \overline{B}}$

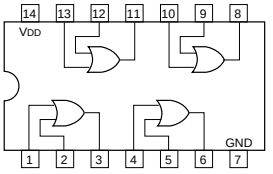
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

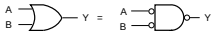
0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S32F 7S32FU	+2 to +6V
4S71F	+3 to +18V
7SH32FU	–2 to +5.5V

SN74HC32APW (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT OR GATES
—TOP VIEW—





Y = A + B = $\overline{\overline{A} \cdot \overline{B}}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

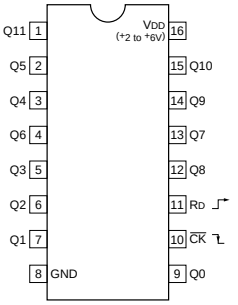
0 ; LOW LEVEL
1 ; HIGH LEVEL

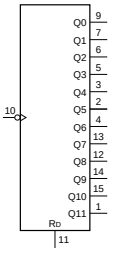
NOTE:

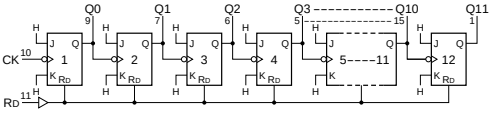
TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V

SN74HC4040ANS (TI) FLAT PACKAGE

C-MOS 12-STAGE RIPPLE CARRY BINARY COUNTER/DRIVER
-TOP VIEW-







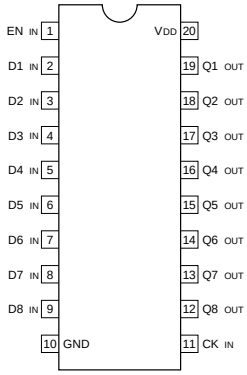
COUNT	Q11	Q10	Q9	Q8	Q7	Q6	Q5	Q4	Q3	Q2	Q1	Q0
0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	0	1	0
3	0	0	0	0	0	0	0	0	0	0	1	1
4095	1	1	1	1	1	1	1	1	1	1	1	1

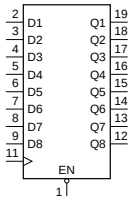
RD	Q11-------Q0
1	ALL LOW
0	COUNT

0 ; LOW LEVEL
1 ; HIGH LEVEL

SN74HC574APW-E20 (TI)

C-MOS 3-STATE D-TYPE EDGE-TRIGGERED FLIP-FLOP
– TOP VIEW –

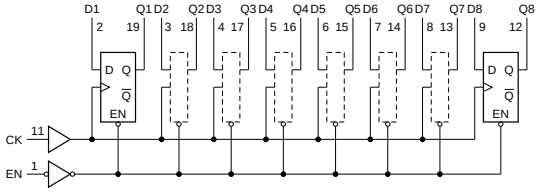




EACH FLIP-FLOP

INPUTS			OUT
EN	CK	D	Q
0	↑	1	1
0	↑	0	0
0	↓	X	Q_0
1	X	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE
Q_0 ; NO CHANGE

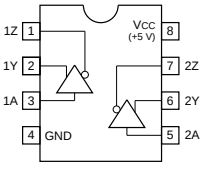


NOTE;

TYPE	VDD
HC	+2 to +6V
AC/VHC	+2 to +5.5V
ACT/FCT/HCT	+5V

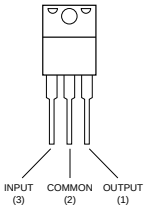
SN75158PS (TI)

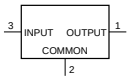
DUAL DIFFERENTIAL LINE DRIVE
— TOP VIEW —



TA7805S (TOSHIBA) +5V (1 A)

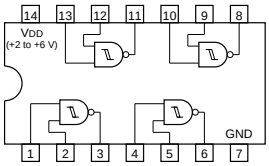
POSITIVE VOLTAGE REGULATOR
—FRONT VIEW—

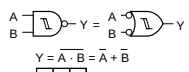




TC74HC132P (TOSHIBA)

C-MOS 2-INPUT NAND SCHMITT TRIGGER
—TOP VIEW—





$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

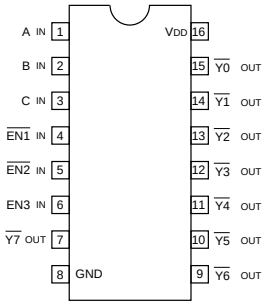
0 ; LOW LEVEL
1 ; HIGH LEVEL

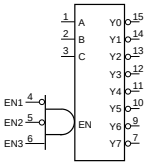
NOTE:

TYPE	VDD
HC	+2 to +6 V
VHC	+2 to +5.5 V

TC74HC138P (TOSHIBA)

C-MOS 3-TO-8 LINE DECODER / DEMULTIPLEXER
—TOP VIEW—





NOTE:

TYPE	VDD
74HCT138 TYPE	+5V
74ACT138 TYPE	+4.5 to +5.5V
TC74AC138 TYPE TC74VHC138	+2 to +5.5V
OTHER TYPES	+2 to +6V

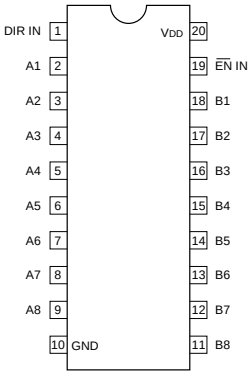
INPUTS				OUTPUTS							
EN	C	B	A	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
0	X	X	X	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1	1	1	0	1
1	0	1	0	1	1	1	1	1	0	1	1
1	0	1	1	1	1	1	1	0	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1
1	1	0	1	1	1	0	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1	1	1

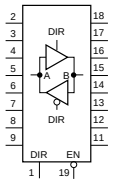
$EN = \overline{EN1} \cdot \overline{EN2} \cdot EN3$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

TC74HC245P (TOSHIBA)

C-MOS BILATERAL BUS TRANSCEIVERS WITH 3-STATE OUTPUTS
-TOP VIEW-



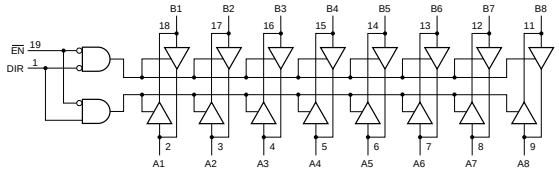


$\overline{EN}$	DIR	OPERATION
0	0	B to A
0	1	A to B
1	X	HI-Z

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE
HI-Z : HIGH IMPEDANCE

NOTE:

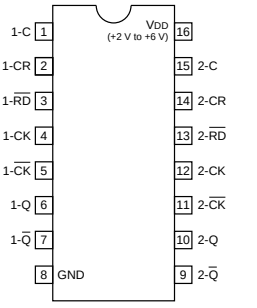
TYPE	VDD
AC HC	+2 to +6V
ABT ACT BCT HCT	+5V
TC74AC245F TC74AC245P TC74VHC245	+2 to +5.5V
74LVT	+2.7 to +3.6V

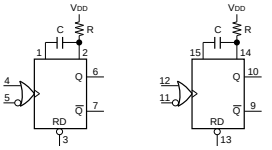


TC74HC4538AF (TOSHIBA) FLAT PACKAGE

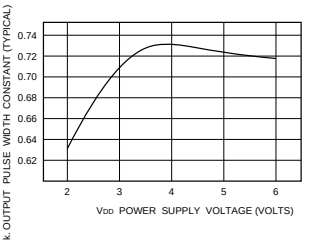
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE MONOSTABLE MULTIVIBRATOR

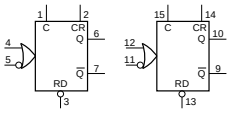
— TOP VIEW —



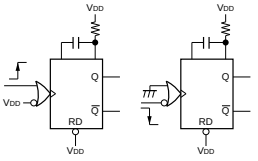


OUTPUT PULSE WIDTH = k · C · R

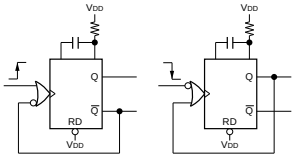




RETRIGGERABLE M. M. V



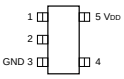
NON-RETRIGGERABLE M. M. V



TC7S00F (TOSHIBA) CHIP PACKAGE

C-MOS 2-INPUT NAND GATE

— TOP VIEW —



$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

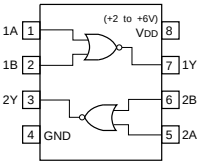
0 ; LOW LEVEL
1 ; HIGH LEVEL

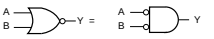
TYPE	VDD
7S00F 7S00FU	+2 to +6 V
4S11F 4SU11F	+3 to +18 V
7SH00FU	+2 to +5.5 V

TC7W02F (TOSHIBA) FLAT PACKAGE

C-MOS DUAL 2-INPUT NOR GATE

—TOP VIEW—





$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

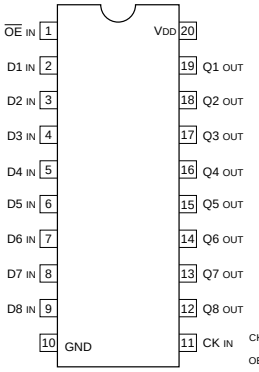
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

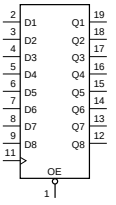
0 ; LOW LEVEL
1 ; HIGH LEVEL

TC74HC573F (TOSHIBA) FLAT PACKAGE

C-MOS 3-STATE OUTPUTS OCTAL LATCHES

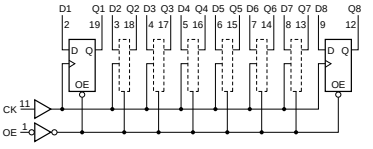
- TOP VIEW -





INPUT			OUT
OE	CK	D	Q
0	1	1	1
0	1	0	0
0	0	X	Qo
1	X	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE
Qo ; NO CHANGE



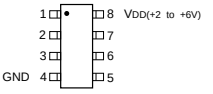
NOTE :

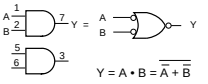
TYPE	VDD
AC	+2 to +6V
HC	
ABT	+5V
ACT	
HCT	
TC74AC573	+2 to +5.5V

TC7W08FU (TOSHIBA) CHIP PACKAGE

C-MOS 2-INPUT AND GATE

—TOP VIEW—





$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

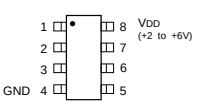
0 ; LOW LEVEL
1 ; HIGH LEVEL

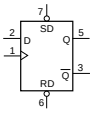
TC7W74FU (TOSHIBA) CHIP PACKAGE

C-MOS D-TYPE FLIP-FLOPS WITH DIRECT SET / RESET

—TOP VIEW—

—TOP VIEW—



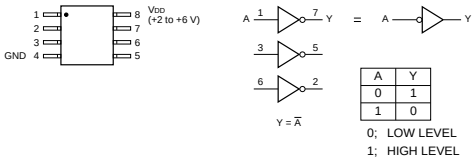


INPUTS				OUTPUTS	
$\overline{SD}$	$\overline{RD}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	↑	X	Qn	$\overline{Qn}$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

TC7WU04FU (TOSHIBA) FLAT PACKAGE

C-MOS HEX INVERTERS
– TOP VIEW –

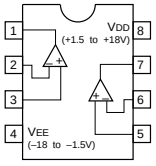


A	Y
0	1
1	0

0; LOW LEVEL
1; HIGH LEVEL

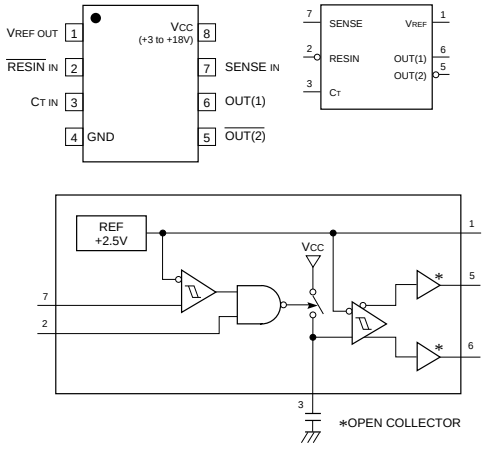
TL062CPS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER
(J FET INPUT)
—TOP VIEW—



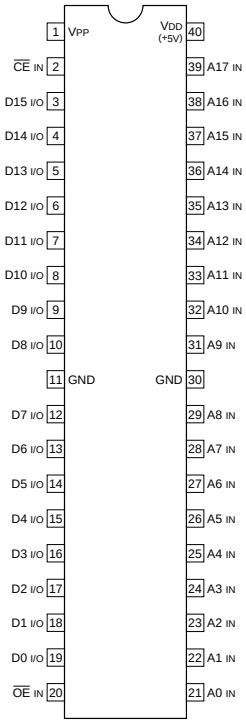
TL7705CPS-B (TI) FLAT PACKAGE

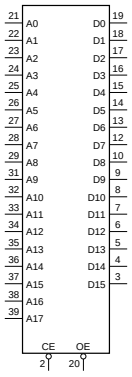
POWER VOLTAGE SUPERVISOR
—TOP VIEW—



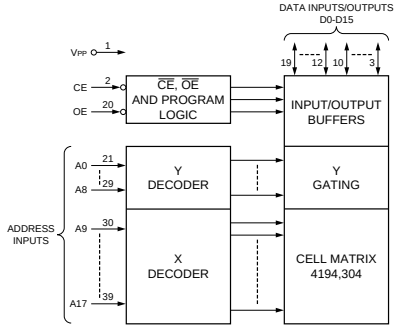
TMS27C240-12JL (TI)

C-MOS 4M (262k×16)-BIT UV EPROM
-TOP VIEW-





A0-A17 ; ADDRESS INPUTS
CE ; CHIP ENABLE
D0-D15 ; DATA INPUTS/OUTPUTS
OE ; OUTPUT ENABLE
VPP ; PROGRAMMING VOLTAGE
(PROGRAM : 13.0V)



ABOVE DIAGRAM SHOWS CONDITIONS BEFORE PROGRAMMING.

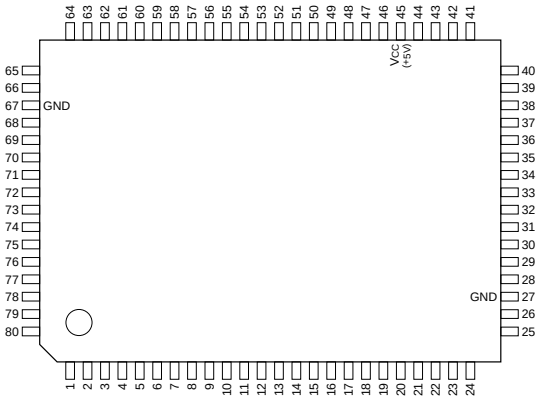
CE	OE	VPP	VDD	A9	A0	D0-D15	FUNCTION
0	0	VDD	VDD	X	X	DOUT	READ
0	1	VDD	VDD	X	X	HI-Z	OUTPUT DISABLE
0	1	VPP	VDD	X	X	DIN	PROGRAMMING
1	0	VPP	VDD	X	X	DOUT	VERIFY
1	1	VPP	VDD	X	X	HI-Z	PROGRAM INHIBIT
1	X	VDD	VDD	X	X	HI-Z	STANDBY
0	0	VDD	VDD	VH	0	97 (MAKER CODE)	SIGNATURE MODE
				VH	1	30 (DEVICE CODE)	

1 ; HIGH LEVEL
0 ; LOW LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE
VH ; 12.0 ± 0.5V

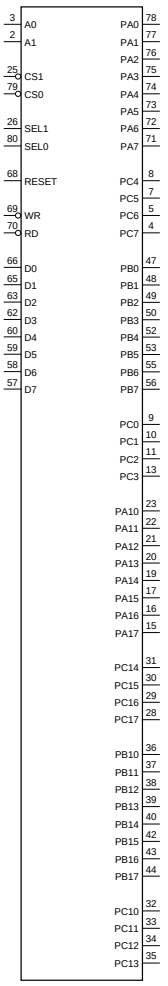
TMP82C265BF-2 (5MHz) (TOSHIBA) FLAT PACKAGE

C-MOS PROGRAMMABLE PERIPHERAL INTERFACE

-TOP VIEW-



PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	–	NC	21	I/O	PA12	41	–	NC	61	–	NC
2	I	A1	22	I/O	PA11	42	I/O	PB15	62	I/O	D3
3	I	A0	23	I/O	PA10	43	I/O	PB16	63	I/O	D2
4	I/O	PC07	24	–	NC	44	I/O	PB17	64	–	NC
5	I/O	PC06	25	I	$\overline{CS1}$	45	–	Vcc	65	I/O	D1
6	–	NC	26	I	SEL1	46	–	NC	66	I/O	D0
7	I/O	PC05	27	–	GND	47	I/O	PB00	67	–	GND
8	I/O	PC04	28	I/O	PC17	48	I/O	PB01	68	I	RESET
9	I/O	PC00	29	I/O	PC16	49	I/O	PB02	69	I	$\overline{WR}$
10	I/O	PC01	30	I/O	PC15	50	I/O	PB03	70	I	$\overline{RD}$
11	I/O	PC02	31	I/O	PC14	51	–	NC	71	I/O	PA7
12	–	NC	32	I/O	PC10	52	I/O	PB04	72	I/O	PA6
13	I/O	PC03	33	I/O	PC11	53	I/O	PB05	73	I/O	PA5
14	–	NC	34	I/O	PC12	54	–	NC	74	I/O	PA4
15	I/O	PA17	35	I/O	PC13	55	I/O	PB06	75	I/O	PA3
16	I/O	PA16	36	I/O	PB10	56	I/O	PB07	76	I/O	PA2
17	I/O	PA15	37	I/O	PB11	57	I/O	D7	77	I/O	PA1
18	–	NC	38	I/O	PB12	58	I/O	D6	78	I/O	PA0
19	I/O	PA14	39	I/O	PB13	59	I/O	D5	79	I	$\overline{CS0}$
20	I/O	PA13	40	I/O	PB14	60	I/O	D4	80	I	SEL0

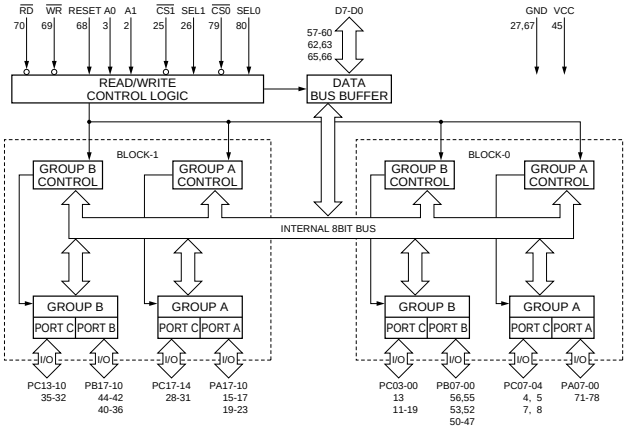


INPUT

A0-A1	;	ADDRESS LINE
$\overline{CS0}$-$\overline{CS1}$	;	CHIP SELECT
$\overline{RD}$	;	READ CONTROL
R/$\overline{W}$	;	READ/WRITE CONTROL
RESET	;	RESET
SEL	;	GENERAL MODE/OUTPUT MODE SELECT CONTROL
$\overline{WR}$	;	WRITE CONTROL

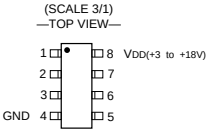
INPUT/OUTPUT

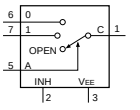
D0-D7	;	DATA BUS
PA0-PA17	;	INPUT/OUTPUT PORT A
PB0-PB17	;	INPUT/OUTPUT PORT B
PC0-PC17	;	INPUT/OUTPUT PORT C



TC4W53F (TOSHIBA) CHIP PACKAGE (5.0 × 3.1)

C-MOS 2-CHANNEL MULTIPLEXER / DEMULTIPLEXER





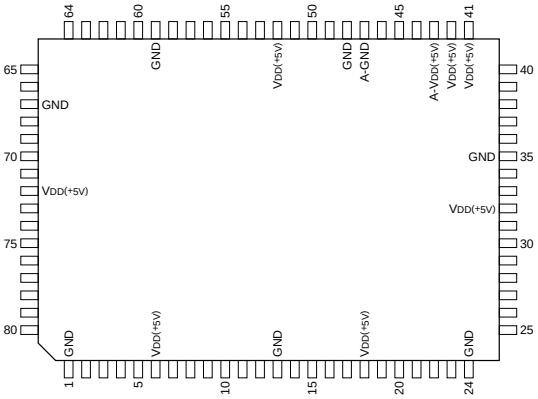
CONT.INPUT		ON CHANNEL
INH	A	
0	0	0
0	1	1
1	X	OPEN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

YGV606-F (YAMAHA)

C-MOS ADVANCED VIDEO DISPLAY PROCESSER

-TOP VIEW-

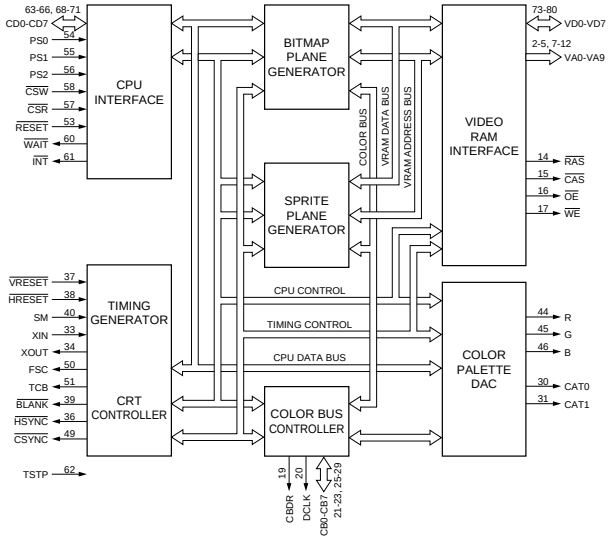


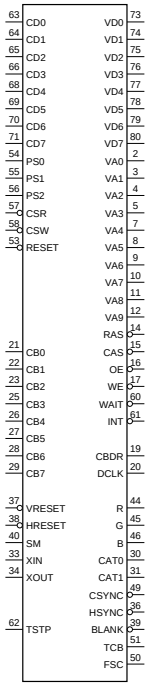
A-VDD, A-GND : FOR ANALOG(R, G, B)

VDD, GND : FOR DIGITAL

(A-VDD,VDD = +5V)

PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	–	GND	21	I/O	CB0	41	–	VDD	61	O	$\overline{INT}$
2	O	VA0	22	I/O	CB1	42	–	VDD	62	I	TSTP
3	O	VA1	23	I/O	CB2	43	–	A-VDD	63	I/O	CD0
4	O	VA2	24	–	GND	44	O	R	64	I/O	CD1
5	O	VA3	25	I/O	CB3	45	O	G	65	I/O	CD2
6	–	VDD	26	I/O	CB4	46	O	B	66	I/O	CD3
7	O	VA4	27	I/O	CB5	47	–	A-GND	67	–	GND
8	O	VA5	28	I/O	CB6	48	–	GND	68	I/O	CD4
9	O	VA6	29	I/O	CB7	49	O	$\overline{CSYNC}$	69	I/O	CD5
10	O	VA7	30	O	CAT0	50	O	FSC	70	I/O	CD6
11	O	VA8	31	O	CAT1	51	O	TCB	71	I/O	CD7
12	O	VA9	32	–	VDD	52	–	VDD	72	–	VDD
13	–	GND	33	I	XIN	53	I	$\overline{RESET}$	73	I/O	VD0
14	O	$\overline{RAS}$	34	O	XOUT	54	I	PS0	74	I/O	VD1
15	O	$\overline{CAS}$	35	–	GND	55	I	PS1	75	I/O	VD2
16	O	$\overline{OE}$	36	O	$\overline{HSYNC}$	56	I	PS2	76	I/O	VD3
17	O	$\overline{WE}$	37	I	$\overline{VRESET}$	57	I	$\overline{CSR}$	77	I/O	VD4
18	–	VDD	38	I	$\overline{HRESET}$	58	I	$\overline{CSW}$	78	I/O	VD5
19	O	CBDR	39	O	$\overline{BLANK}$	59	–	GND	79	I/O	VD6
20	O	DCLK	40	I	SM	60	O	$\overline{WAIT}$	80	I/O	VD7





INPUT

$\overline{CSR}$	;	DATA READ STROBE
$\overline{CSW}$	;	DATA WRITE STROBE
$\overline{HRESET}$	;	HORIZONTAL TIMING RESET
PS0-PS2	;	APPOINT NUMBER INPUT/OUTPUT PORT
$\overline{RESET}$	;	POWER ON RESET
SM	;	SCAM MODE SELECT (L : PAL/H : NTSC)
TSTP	;	TEST FOR INTERNAL CIRCUIT
$\overline{VRESET}$	;	VERTICAL TIMING RESET
XIN	;	CLOCK IN

OUTPUT

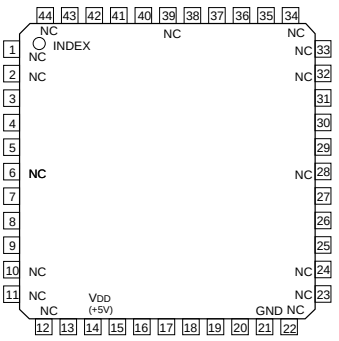
B	;	ANALOG LINEAR B
$\overline{BLANK}$	;	BLANKING
$\overline{CAS}$	;	DRAM COLUMN ADDRESS STROBE FOR VIDEO RAM
CAT0,CAT1	;	COLOR CODE ATTRIBUTE TIMING
CBDR	;	CHARACTOR COLOR CODE SELECT (L : CB0-CB7 INPUTS/H : CB0-CB7 OUTPUTS)
$\overline{CSYNC}$	;	COMPLEX SYNC OR VERTICAL SYNC
DCLK	;	DOT CLOCK
FSC	;	SUB-CARRIER CLOCK FOR NTSC VIDEO ENCODER
G	;	ANALOG LINEAR G
$\overline{HSYNC}$	;	HORIZONTAL SYNC
$\overline{INT}$	;	INTERRUPT REQUEST
$\overline{OE}$	;	DRAM DATA OUTPUT ENABLE FOR VIDEO RAM
R	;	ANALOG LINEAR R
$\overline{RAS}$	;	DRAM ROW ADDRESS STROBE FOR VIDEO RAM
TCB	;	COLOR BURST INSERT TIMING
VA0-VA9	;	ADDRESS BUS FOR VIDEO RAM
$\overline{WAIT}$	;	WAIT
$\overline{WE}$	;	DRAM WRITE ENABLE FOR VIDEO RAM
XOUT	;	CLOCK OUT

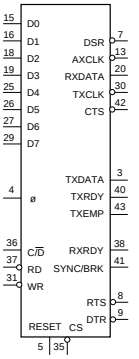
INPUT/OUTPUT

CB0-CB7	;	CHARACTOR COLOR CODE
CD0-CD7	;	8-BIT DATA BUS FOR CPU
VD0-VD7	;	8-BIT DATA BUS FOR VIDEO RAM

UPD71051GB-10-3B4 (NEC) FLAT

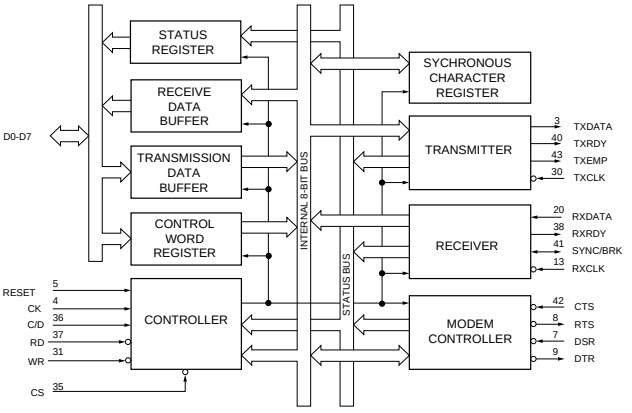
C-MOS SERIAL CONTROLLER
—TOP VIEW—





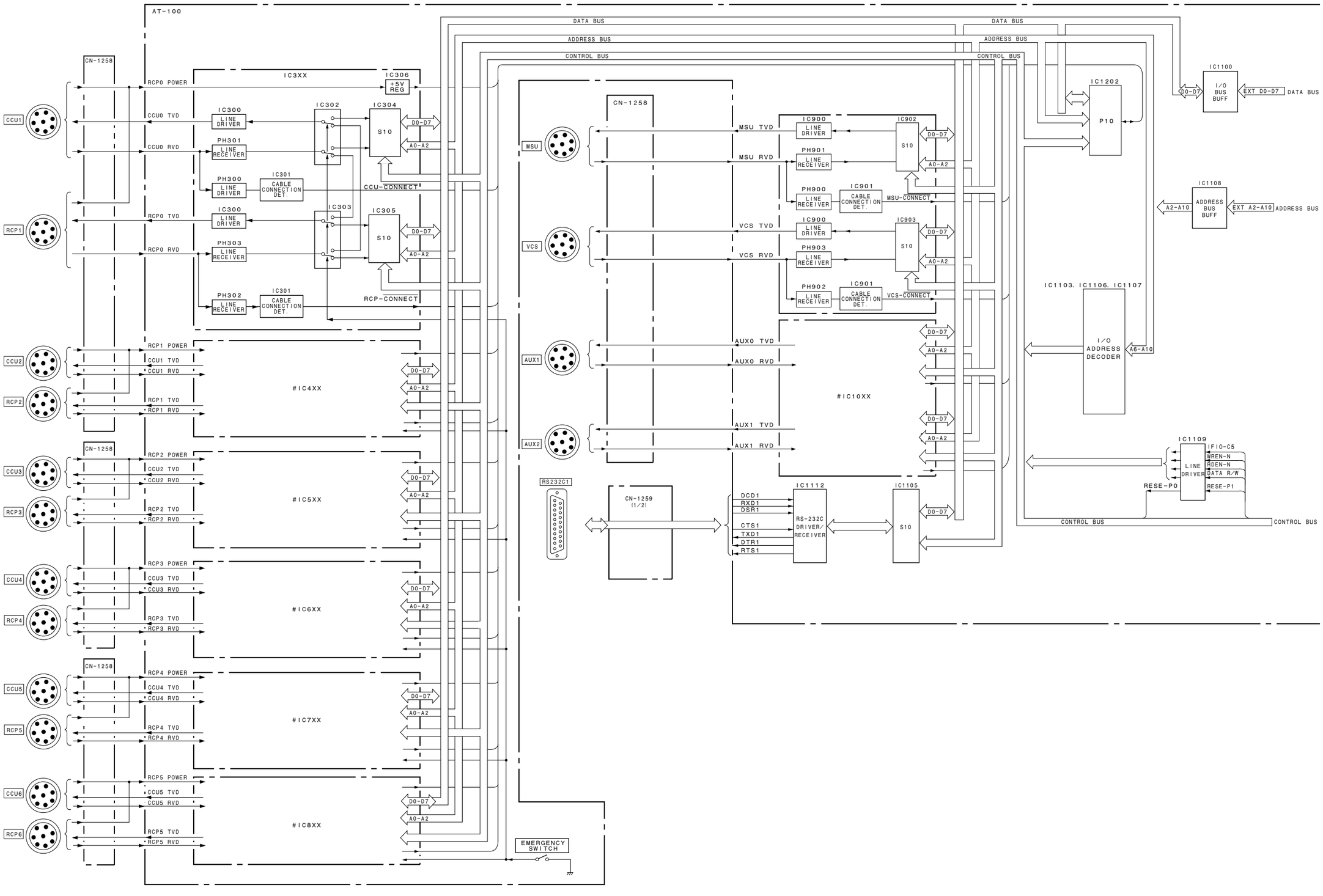
PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL
1	—	NC	12	—	NC	23	—	NC	34	—	NC
2	—	NC	13	I	RXCLK	24	—	NC	35	I	CS
3	O	TXDATA	14	—	VDD(+5V)	25	I/O	D4	36	I	C/D
4	I	CK	15	I/O	D0	26	I/O	D5	37	I	RD
5	I	RESET	16	I/O	D1	27	I/O	D6	38	O	RXRDY
6	—	NC	17	—	IC	28	—	NC	39	—	NC
7	I	DSR	18	I/O	D2	29	I/O	D7	40	O	TXRDY
8	O	RTS	19	I/O	D3	30	I	TXCLK	41	I/O	SYNC/BRK
9	O	DTR	20	I	RXDATA	31	I	WR	42	I	CTS
10	—	NC	21	—	GND	32	—	NC	43	O	TXEMP
11	—	NC	22	—	NC	33	—	NC	44	—	NC

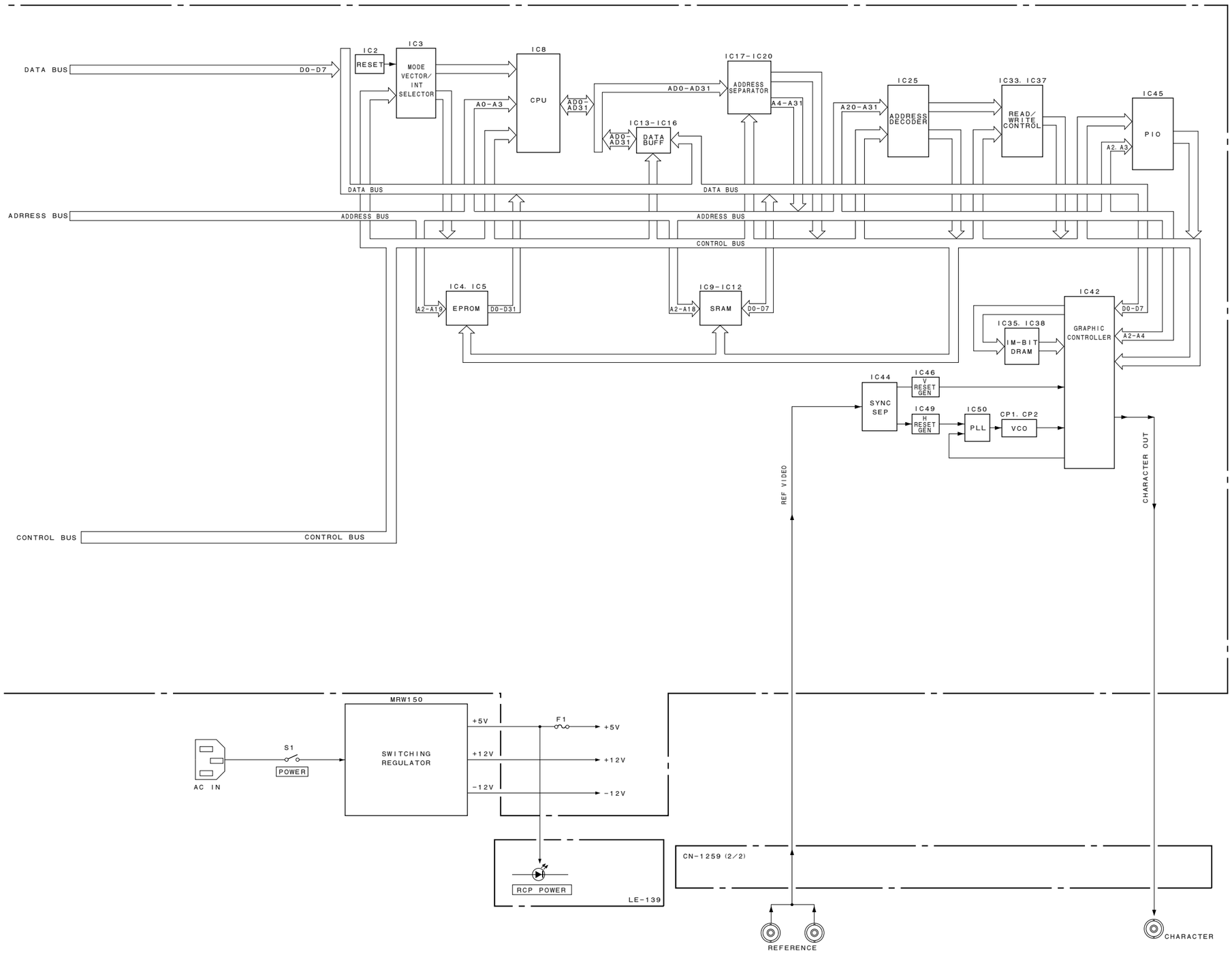
CS ; CHIP SELECT INPUT
CTS ; CLEAR TO SEND OUTPUT
C/D ; CONTROL/DATA SELECT INPUT
D0-D7 ; DATA INPUTS/OUTPUTS
DSR ; DATA SET READY INPUT
DTR ; DATA TERMINAL READY OUTPUT
TXCLK ; TRANSMITTER CLOCK INPUT
TXDATA ; TRANSMIT DATA OUTPUT
TXEMP ; TRANSMITTER EMPTY OUTPUT
TXRDY ; TRANSMIT READY OUTPUT
RD ; READ STROBE INPUT
RESET ; RESET INPUT
RTS ; REQUEST TO SEND OUTPUT
RXCLK ; RECEIVER CLOCK INPUT
RXDATA ; RECEIVE DATA INPUT
RXRDY ; RECEIVER READY OUTPUT
SYNC/BRK ; SYNCHRONIZATION/BREAK INPUT/OUTPUT
WR ; WRITE STROBE INPUT



Section 5
Block Diagrams

OVERALL BLOCK



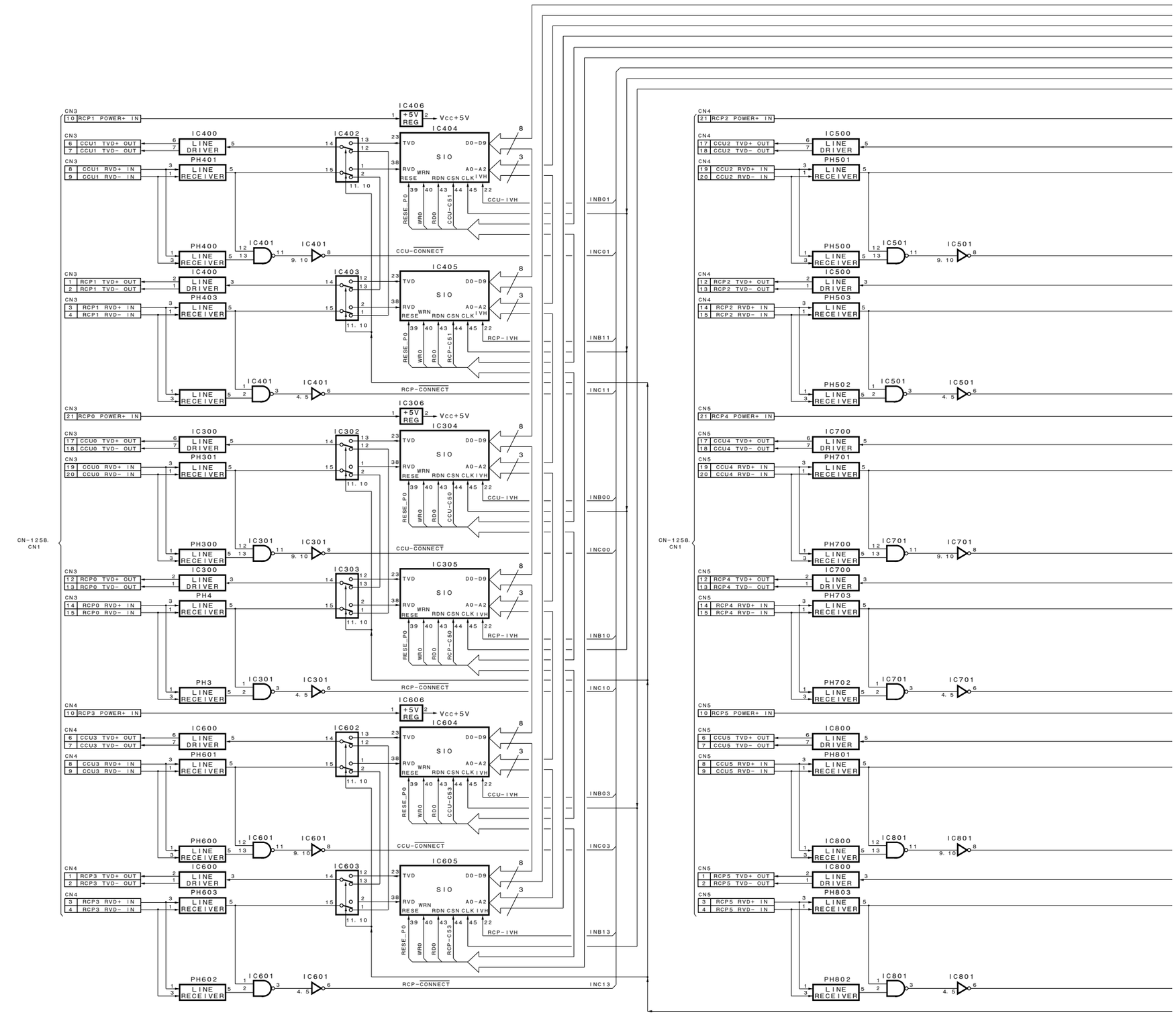


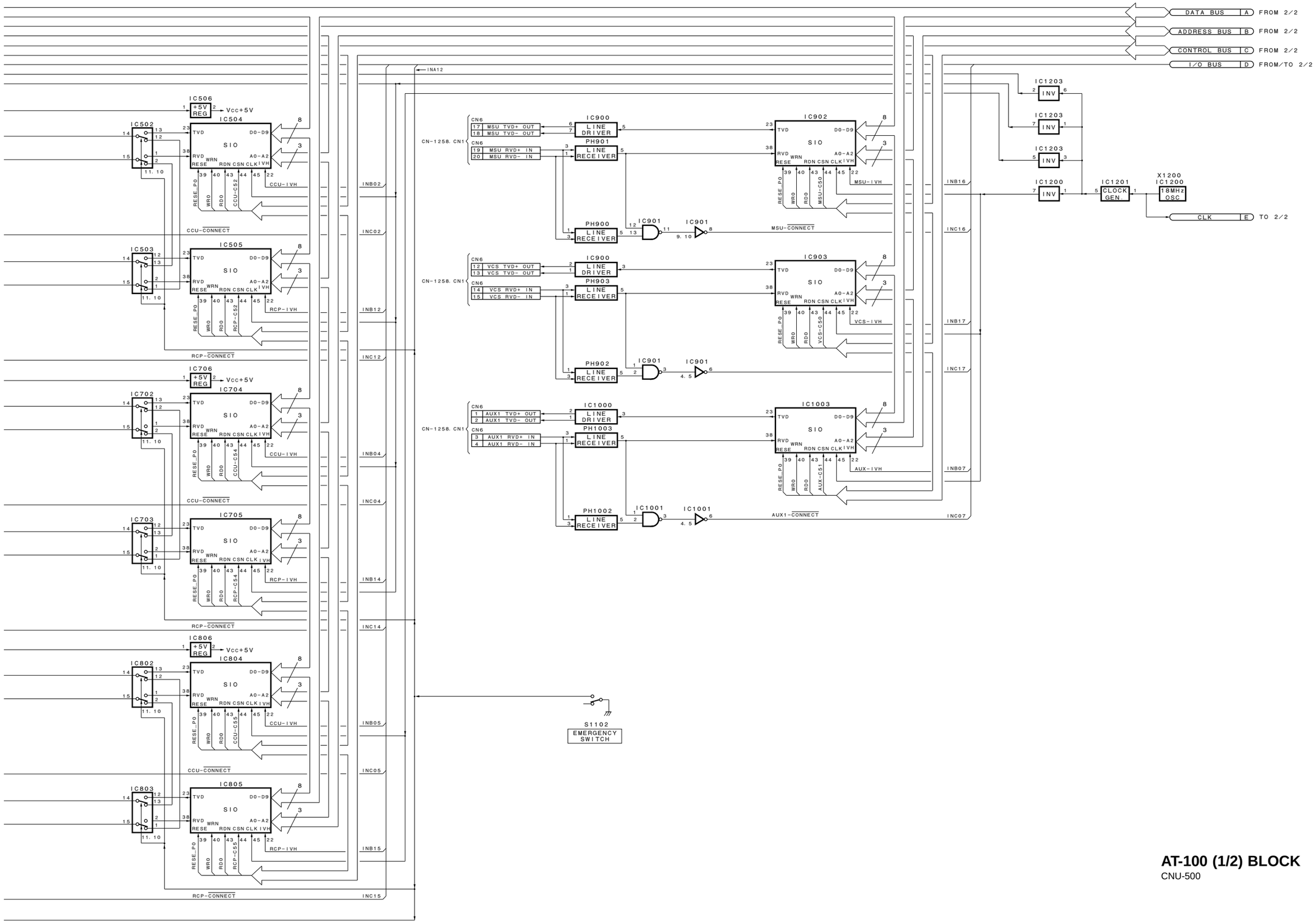
OVERALL BLOCK

CNU-500

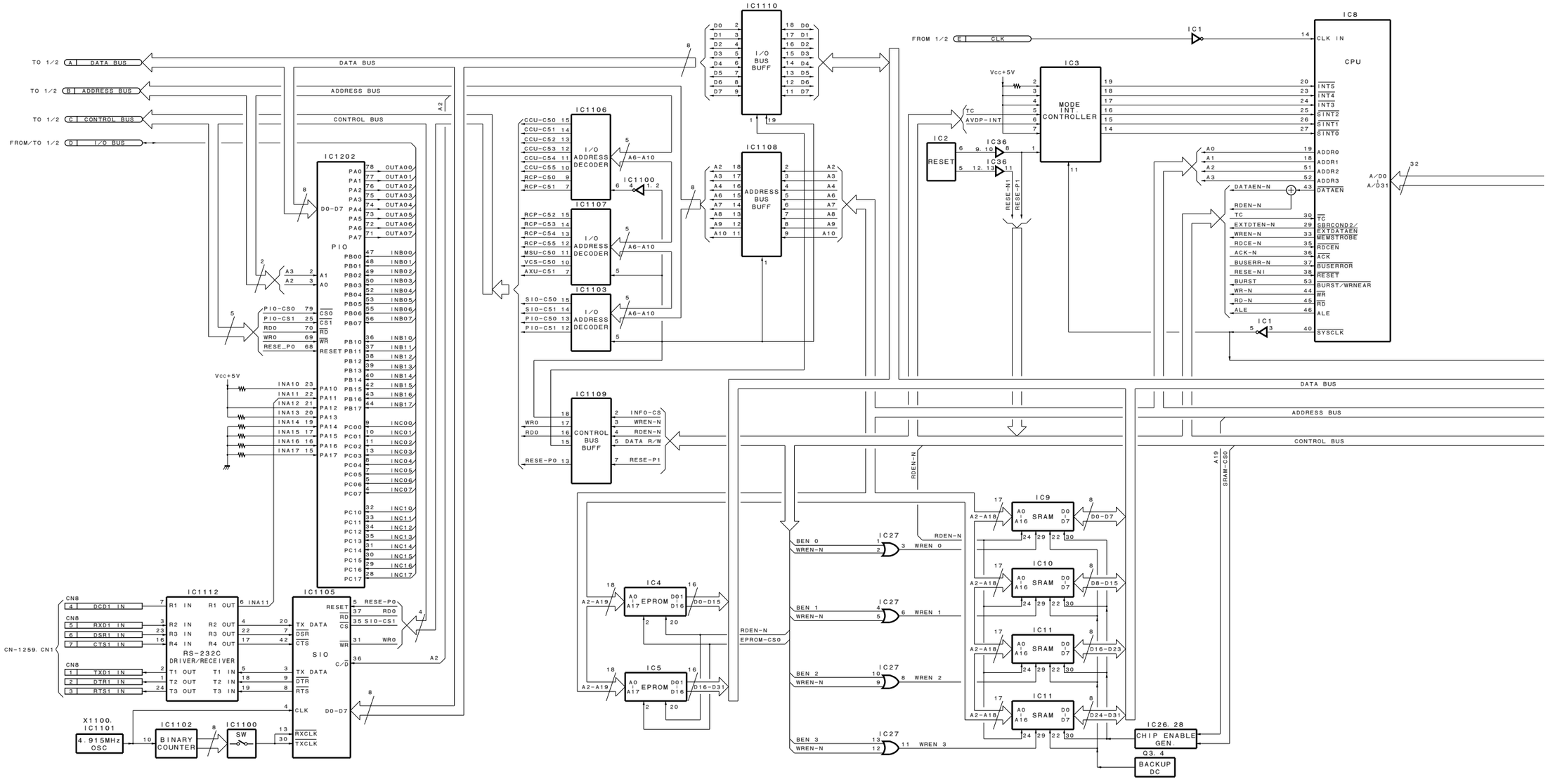
CNU-500 OVERALL#2/M

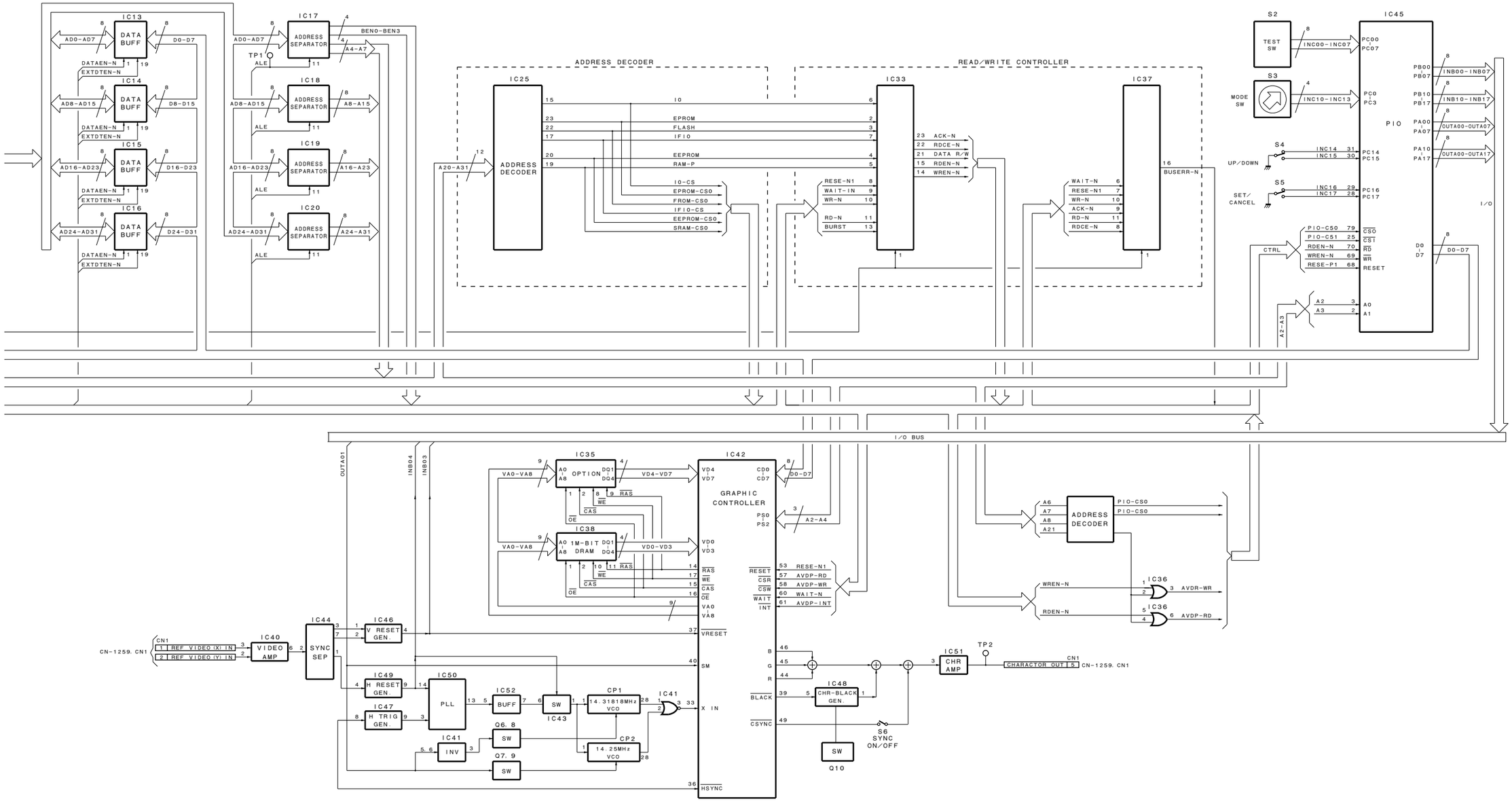
AT-100 BLOCK


IC406
+5V REG
Vcc+5V
IC404
IC405
IC306
IC304
IC606
IC604
IC605
SIO
TVD
RVD
WRN
RDN CSN CLK IVH
RESE
D0-D9
A0-A2
RESE_PO
WRO
RDO
CCU-C51
RCP-C51
CCU-C50
RCP-C50
CCU-C53
RCP-C53
CCU-IVH
RCP-IVH
CCU-CONNECT
RCP-CONNECT
LINE DRIVER
LINE RECEIVER
IC400
IC402
IC403
IC300
IC302
IC303
IC305
IC600
IC602
IC603
IC605
PH401
PH400
PH403
PH301
PH300
PH4
PH3
PH601
PH600
PH603
PH602
IC401
IC301
IC601
CN3
10 RCP1 POWER+ IN
6 CCU1 TVD+ OUT
7 CCU1 TVD- OUT
8 CCU1 RVD+ IN
9 CCU1 RVD- IN
1 RCP1 TVD+ OUT
2 RCP1 TVD- OUT
3 RCP1 RVD+ IN
4 RCP1 RVD- IN
21 RCP0 POWER+ IN
17 CCU0 TVD+ OUT
18 CCU0 TVD- OUT
19 CCU0 RVD+ IN
20 CCU0 RVD- IN
12 RCP0 TVD+ OUT
13 RCP0 TVD- OUT
14 RCP0 RVD+ IN
15 RCP0 RVD- IN
CN4
10 RCP3 POWER+ IN
6 CCU3 TVD+ OUT
7 CCU3 TVD- OUT
8 CCU3 RVD+ IN
9 CCU3 RVD- IN
1 RCP3 TVD+ OUT
2 RCP3 TVD- OUT
3 RCP3 RVD+ IN
4 RCP3 RVD- IN
CN-1258.
CN1
INB01
INC01
INB11
INC11
INB00
INC00
INB10
INC10
INB03
INC03
INB13
INC13
CN4
21 RCP2 POWER+ IN
17 CCU2 TVD+ OUT
18 CCU2 TVD- OUT
19 CCU2 RVD+ IN
20 CCU2 RVD- IN
12 RCP2 TVD+ OUT
13 RCP2 TVD- OUT
14 RCP2 RVD+ IN
15 RCP2 RVD- IN
CN5
21 RCP4 POWER+ IN
17 CCU4 TVD+ OUT
18 CCU4 TVD- OUT
19 CCU4 RVD+ IN
20 CCU4 RVD- IN
12 RCP4 TVD+ OUT
13 RCP4 TVD- OUT
14 RCP4 RVD+ IN
15 RCP4 RVD- IN
10 RCP5 POWER+ IN
6 CCU5 TVD+ OUT
7 CCU5 TVD- OUT
8 CCU5 RVD+ IN
9 CCU5 RVD- IN
1 RCP5 TVD+ OUT
2 RCP5 TVD- OUT
3 RCP5 RVD+ IN
4 RCP5 RVD- IN
IC500
IC502
IC503
IC700
IC702
IC703
IC705
IC800
IC802
IC803
IC805
PH501
PH500
PH503
PH502
PH701
PH700
PH703
PH702
PH801
PH800
PH803
PH802
IC501
IC701
IC801



AT-100 (1/2) BLOCK
CNU-500

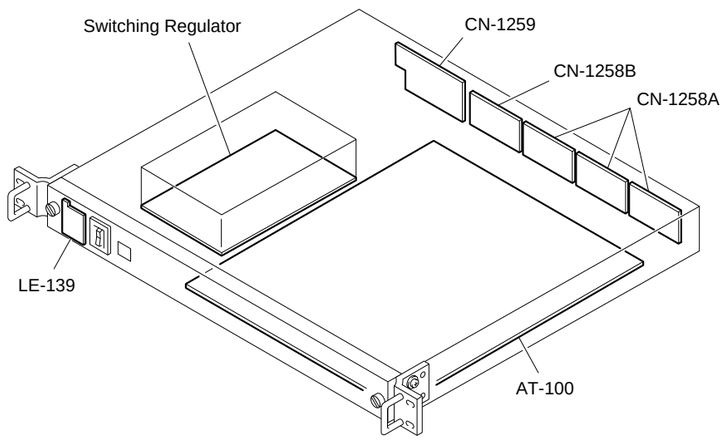

TO 1/2 A DATA BUS
TO 1/2 B ADDRESS BUS
TO 1/2 C CONTROL BUS
FROM/TO 1/2 D I/O BUS
DATA BUS
ADDRESS BUS
CONTROL BUS
IC1202
PIO
PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7
PB0 PB1 PB2 PB3 PB4 PB5 PB6 PB7
PB10 PB11 PB12 PB13 PB14 PB15 PB16 PB17
PA10 PA11 PA12 PA13 PA14 PA15 PA16 PA17
PC0 PC1 PC2 PC3 PC4 PC5 PC6 PC7
PC10 PC11 PC12 PC13 PC14 PC15 PC16 PC17
D0-D7
A1
A0
PIO-CS0
PIO-CS1
RD0
WR0
RESE_P0
RESET
OUTA00 OUTA01 OUTA02 OUTA03 OUTA04 OUTA05 OUTA06 OUTA07
INB00 INB01 INB02 INB03 INB04 INB05 INB06 INB07
INB10 INB11 INB12 INB13 INB14 INB15 INB16 INB17
INC00 INC01 INC02 INC03 INC04 INC05 INC06 INC07
INC10 INC11 INC12 INC13 INC14 INC15 INC16 INC17
Vcc+5V
INA10 INA11 INA12 INA13 INA14 INA15 INA16 INA17
IC1112
RS-232C
DRIVER/RECEIVER
CN8
DCD1 IN
RXD1 IN
DSR1 IN
CTS1 IN
TXD1 IN
DTR1 IN
RTS1 IN
CN-1259, CN1
IC1105
SIO
TX DATA
DSR
CTS
DTR
RTS
CLK
RESET
RD0
SIO-CS1
WR0
C/D
RXCLK
TXCLK
X1100,
IC1101
4.915MHz
OSC
IC1102
BINARY
COUNTER
IC1100
SW
IC1106
IC1107
IC1103
I/O
ADDRESS
DECODER
A6-A10
IC1100
CCU-C50 CCU-C51 CCU-C52 CCU-C53 CCU-C54 CCU-C55
RCP-C50 RCP-C51 RCP-C52 RCP-C53 RCP-C54 RCP-C55
MSU-C50 VCS-C50 AXU-C51
SIO-C50 SIO-C51 PIO-C50 PIO-C51
IC1110
I/O
BUS
BUFF
D0 D1 D2 D3 D4 D5 D6 D7
IC1108
ADDRESS
BUS
BUFF
A2 A3 A4 A6 A7 A8 A9 A10
IC1109
CONTROL
BUS
BUFF
WR0
RD0
RESE-P0
INF0-CS
WREN-N
RDEN-N
DATA R/W
RESE-P1
IC4
IC5
EPROM
A0 A17
D01 D16
A2-A19
D0-D15
D16-D31
RDEN-N
EPROM-CS0
IC27
BEN 0 BEN 1 BEN 2 BEN 3
WREN-N
WREN 0 WREN 1 WREN 2 WREN 3
IC9
IC10
IC11
SRAM
A0 A16
DO D7
A2-A18
D0-D7
D8-D15
D16-D23
D24-D31
IC26, 28
CHIP ENABLE
GEN.
Q3, 4
BACKUP
DC
FROM 1/2 E CLK
IC1
IC8
CPU
CLK IN
INT5 INT4 INT3 INT2 INT1 INT0
IC3
MODE
INT
CONTROL
IC2
RESET
IC36
TC
AVDP-INT
RESE-N1
RESE-P1
ADDR0 ADDR1 ADDR2 ADDR3
DATAEN
RDEN
TC
EXTDTEN-N
WREN-N
RDCE-N
ACK-N
BUSERR-N
RESE-N1
BURST
WR-N
RD-N
ALE
SYSCLK
SBRCOND2/
EXTDATAEN
MEMSTROBE
RDCEN
ACK
BUSERROR
RESET
BURST/WRNEAR
WR
RD
A/D0
A/D31
SRAM-CS0
A19



AT-100 (2/2) BLOCK
CNU-500

Section 6
Schematic Diagrams

LOCATION OF PRINTED CIRCUIT BOARDS



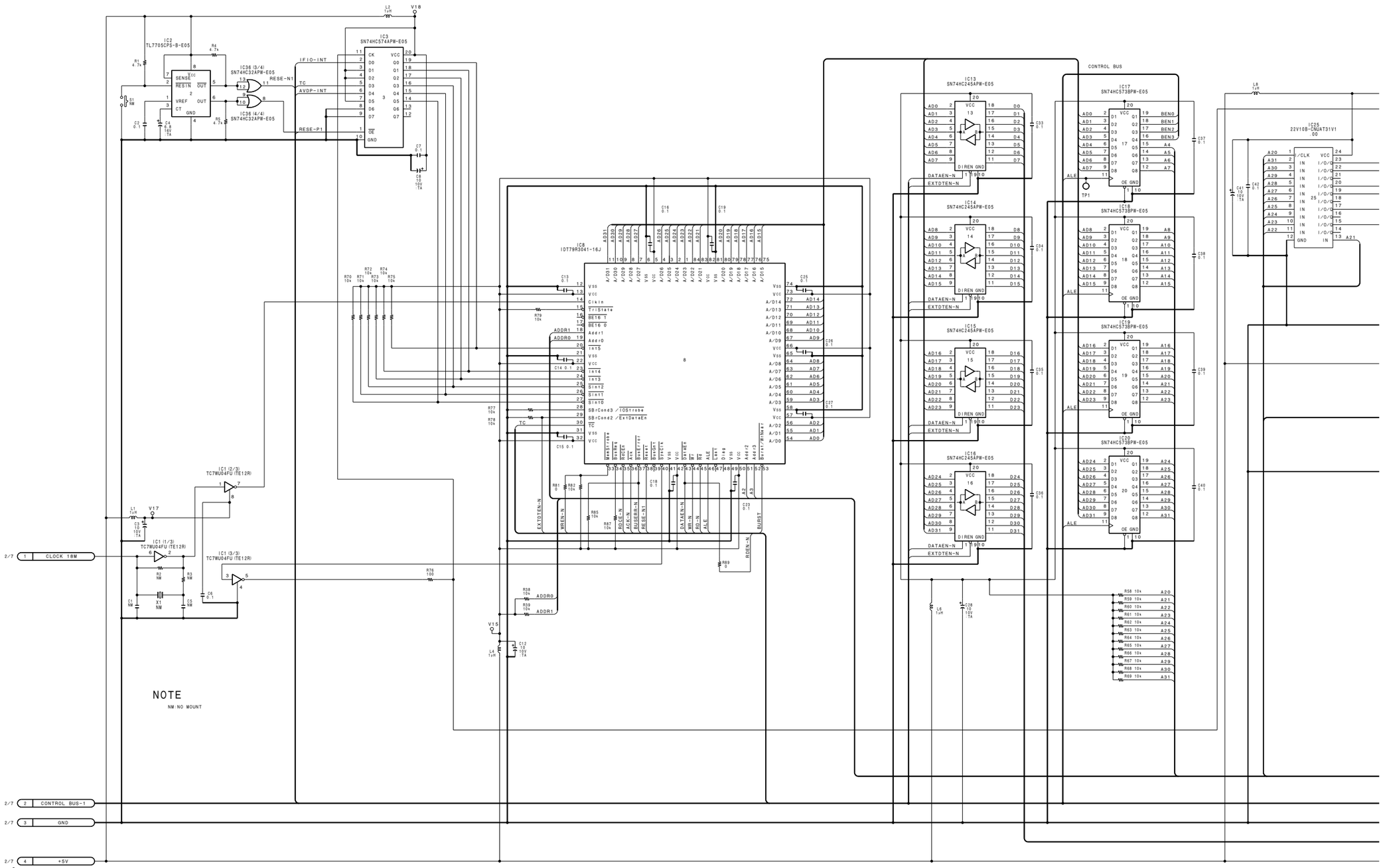
AT-100 BOARD

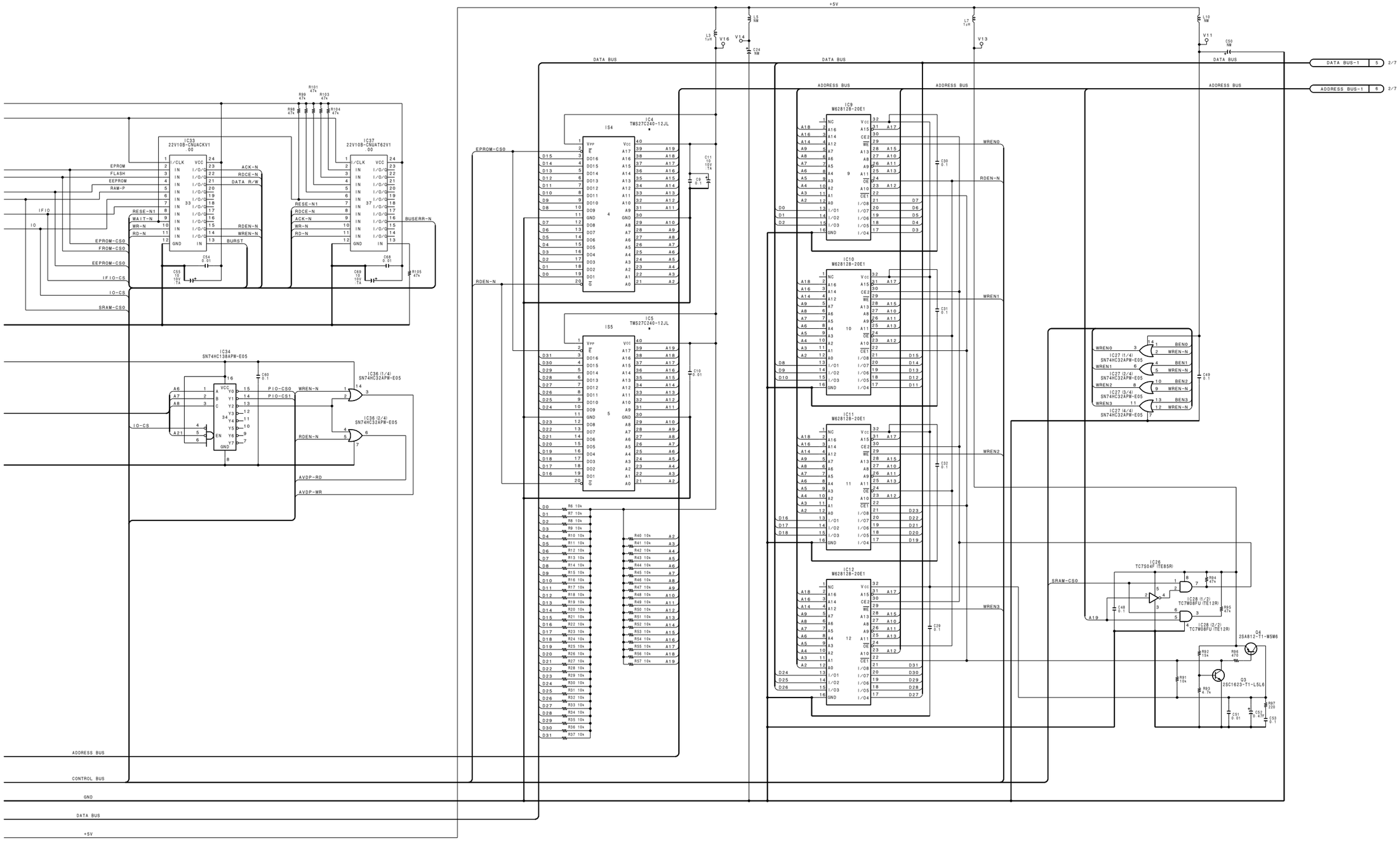
AT-100 (1-658-249-12)

*: B SIDE

	CN1	J-15	
	CN2	J-1	
	CN3	P-14	
	CN4	P-10	
	CN5	P-7	
	CN6	P-3	
	CN8	H-2	
	CP1	B-13	
	CP2	B-14	
*	D1	G-15	
*	D2	H-15	
*	D3	A-14	
	D4	A-1	
*	D300	R-15	
	D301	S-12	
	D302	S-12	
*	D400	M-15	
	D401	N-12	
	D402	N-12	
*	D500	R-11	
	D501	S-9	
	D502	S-9	
*	D600	M-11	
	D601	N-9	
	D602	N-9	
*	D700	R-8	
	D701	S-5	
	D702	S-5	
*	D800	M-8	
	D801	N-5	
	D802	N-5	
*	D803	H-13	
	E1	H-1	
	E2	J-7	
	E3	J-13	
	E4	A-10	
	E5	N-4	
	E6	S-12	
	E7	D-15	
	E1100	A-1	
	E1101	A-2	
	F1	G-1	
	IC1	G-2	
	IC2	G-2	
	IC3	F-2	
	IC4	A-9	
	IC5	B-9	
	IC8	E-2	
	IC9	E-6	
	IC10	D-6	
	IC11	C-6	
	IC12	B-6	
	IC13	E-4	
	IC14	D-4	
	IC15	C-4	
	IC16	B-4	
	IC17	E-3	
	IC18	D-3	
	IC19	C-3	
	IC20	B-3	
	IC25	A-1	
	IC26	A-8	
	IC27	A-8	
	IC28	A-8	
	IC33	B-1	
	IC34	F-1	
	IC36	G-1	
	IC37	C-1	
	IC38	D-13	
	IC39	G-15	
	IC40	F-15	
	IC41	C-13	
	IC42	F-13	
	IC43	C-14	
	IC44	E-15	
	IC45	H-10	
	IC46	D-15	
	IC47	A-13	
	IC48	H-13	
	IC49	C-14	
	IC50	A-14	
	IC51	H-13	
	IC52	B-15	
	IC300	P-13	
	IC301	R-14	
	IC302	R-14	
	IC303	R-13	
	IC304	S-14	
	IC305	S-13	
	IC306	R-12	
	IC400	N-13	
	IC401	M-14	
	IC402	M-14	
	IC403	M-13	
	IC404	L-14	
	IC405	L-13	
	IC406	M-12	
	IC500	P-10	
	IC501	R-10	
	IC502	R-11	
	IC503	R-10	
	IC504	S-11	
	IC505	S-10	
	IC506	R-9	
	IC600	N-10	
	IC601	M-10	
	IC602	M-11	
	IC603	M-10	
	IC604	L-11	
	IC605	L-10	
	IC606	M-9	
	IC700	P-6	
	IC701	R-7	
	IC702	R-7	
	IC703	R-6	
	IC704	S-7	
	IC705	S-6	
	IC706	R-5	
	IC800	N-6	
	L1	G-2	
	L2	G-2	
	L3	A-9	
	L4	E-1	
	L6	A-3	
	L7	A-7	
	L8	C-1	
	L11	A-13	
	L12	H-15	
	L13	D-13	
	L14	D-13	
	L15	H-14	
	L16	F-1	
	L300	R-13	
	L301	S-12	
	L400	M-13	
	L401	N-12	
	L500	R-10	
	L501	S-9	
	L600	M-10	
	L601	N-8	
	L700	R-6	
	L701	S-6	
	L800	M-6	
	L801	N-5	
	L900	R-2	
	L901	S-1	
	L1000	M-2	
	L1001	M-2	
	L1100	G-9	
	L1101	J-2	
	L1102	J-2	
	L1103	G-3	
	L1200	J-9	
	L1201	G-9	
	PH300	P-14	
	PH301	P-15	
	PH302	P-14	
	PH303	P-13	
	PH400	N-14	
	PH401	N-15	
	PH402	N-13	
	PH403	N-14	
	PH500	P-11	
	PH501	P-11	
	PH502	P-10	
	PH503	P-10	
	PH600	N-11	
	PH601	N-11	
	PH602	N-10	
	PH603	N-10	
	PH700	P-7	
	PH701	P-8	
	PH702	P-7	
	PH703	P-7	
	PH800	N-7	
	PH801	N-8	
	PH802	N-7	
	PH803	N-7	
	PH900	P-3	
	PH901	P-4	
	PH902	P-3	
	PH903	P-2	
	PH10022	N-2	
	PH10033	N-3	
*	Q3	A-7	
*	Q4	A-7	
*	Q5	H-15	
*	Q6	B-13	
*	Q7	B-14	
*	Q8	B-13	
*	Q9	B-14	
*	Q10	G-13	
	RV1	A-13	
	S2	H-12	
	S3	A-10	
	S4	A-11	
	S5	A-12	
	S6	A-14	
	S1100	H-7	
	S1102	A-4	
	TP1	E-4	
	TP2	J-14	
	X1100	G-9	
	X1200	J-10	

CNU-500 (UC)
CNU-500 (J)
CNU-500 (CE)

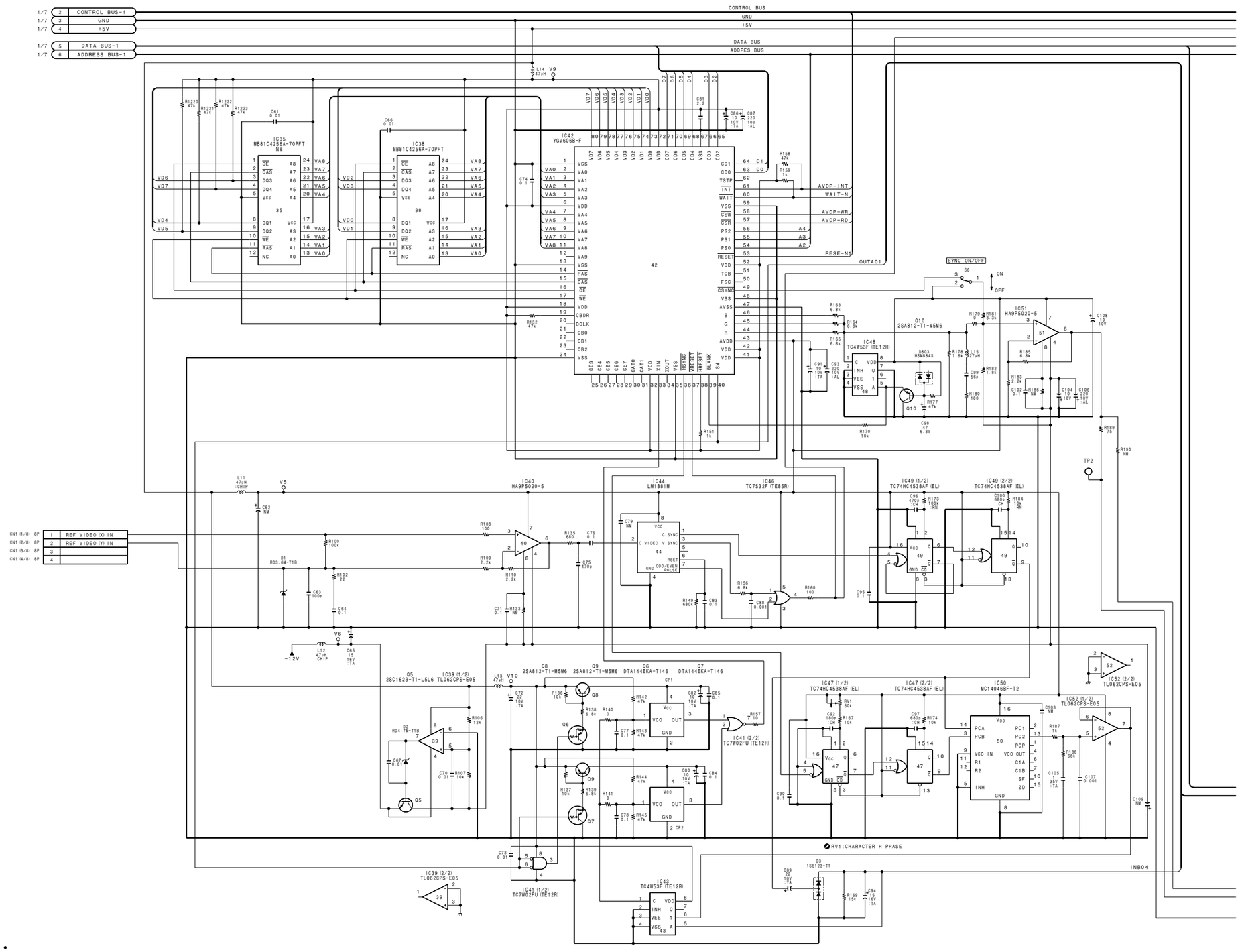




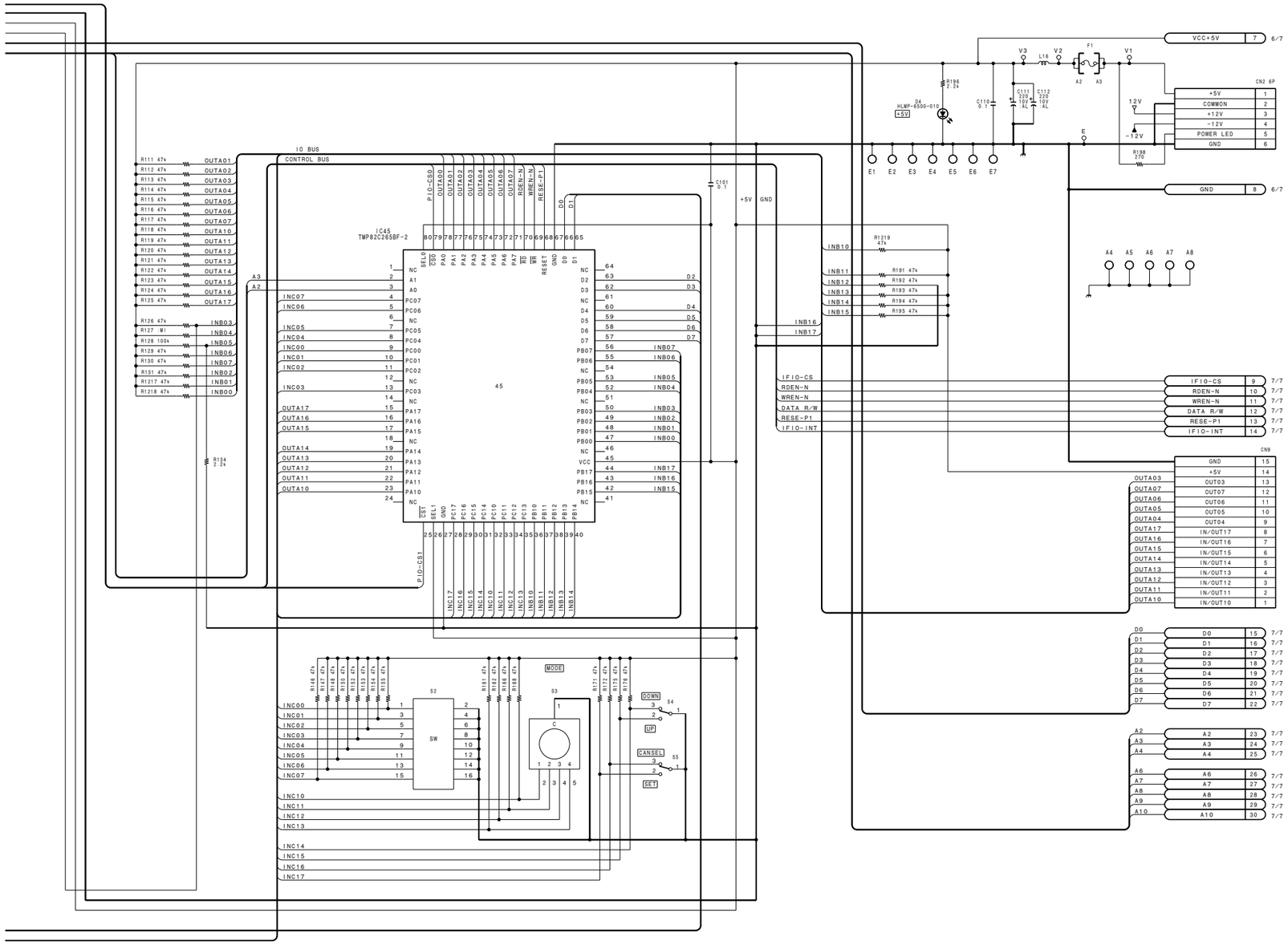
AT-100 (1/7)

BOARD NO. 1-658-249-12
LOT NO. 505-
B-¥CNU500-AT100-12

CNU-500 (UC)
CNU-500 (J)
CNU-500 (CE)



AT-100 (2/7)



NOTE

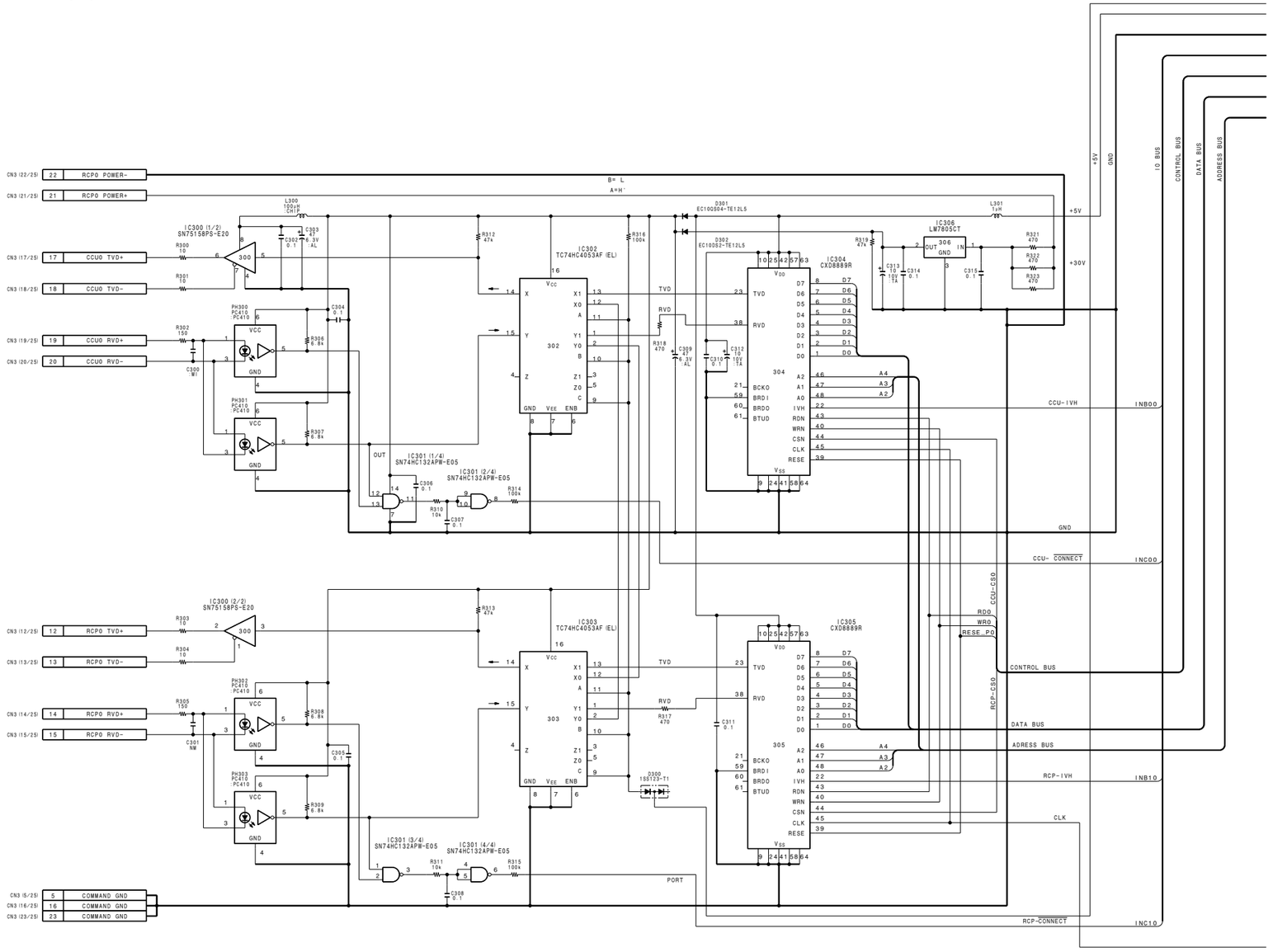
NM: NO MOUNT

AT-100 (2/7)

BOARD NO. 1-658-249-12
LOT NO. 505-
B-¥CNU500-AT100-12

AT-100 (3/7)

CNU-500 (UC)
CNU-500 (J)
CNU-500 (CE)



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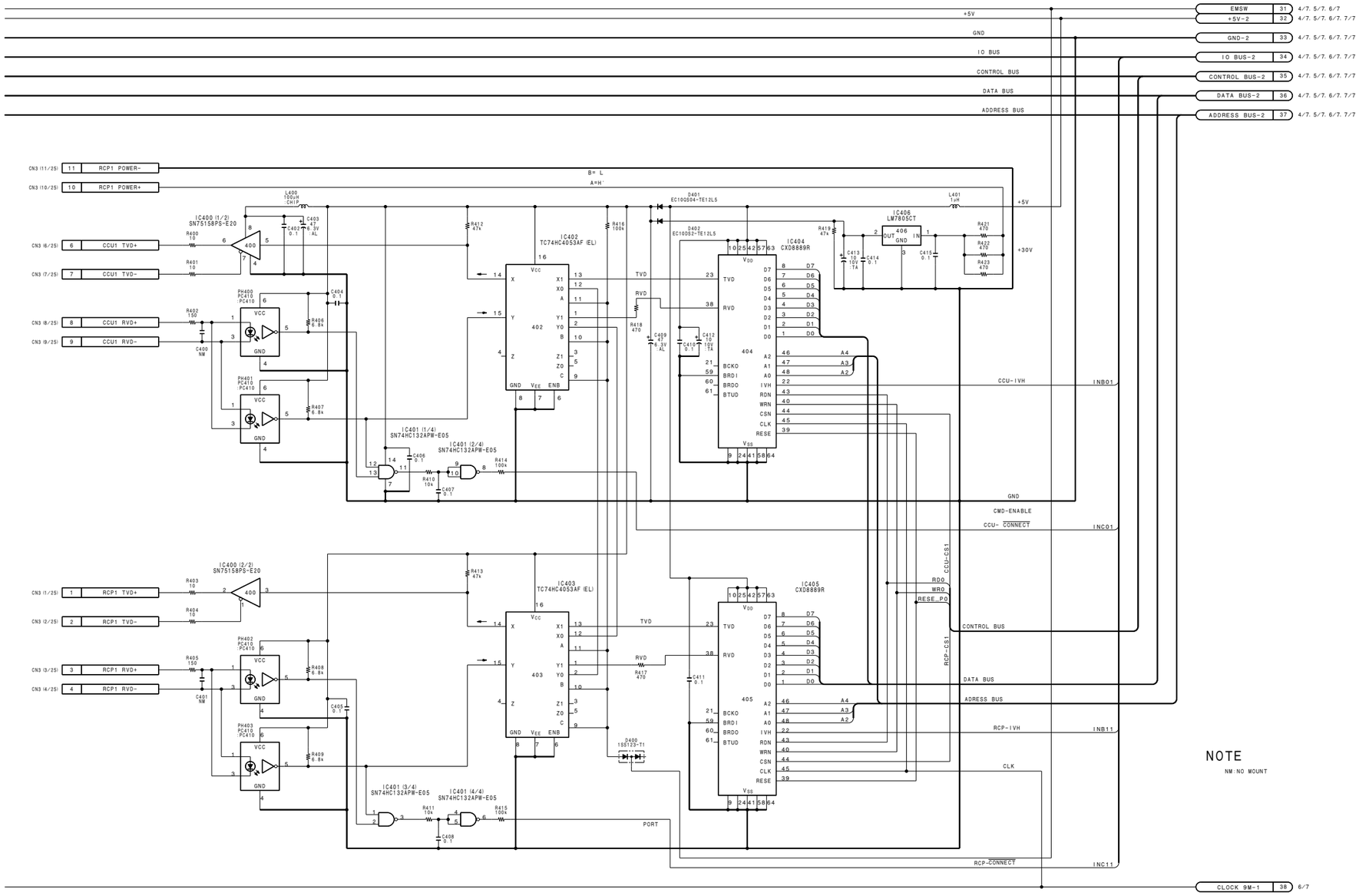
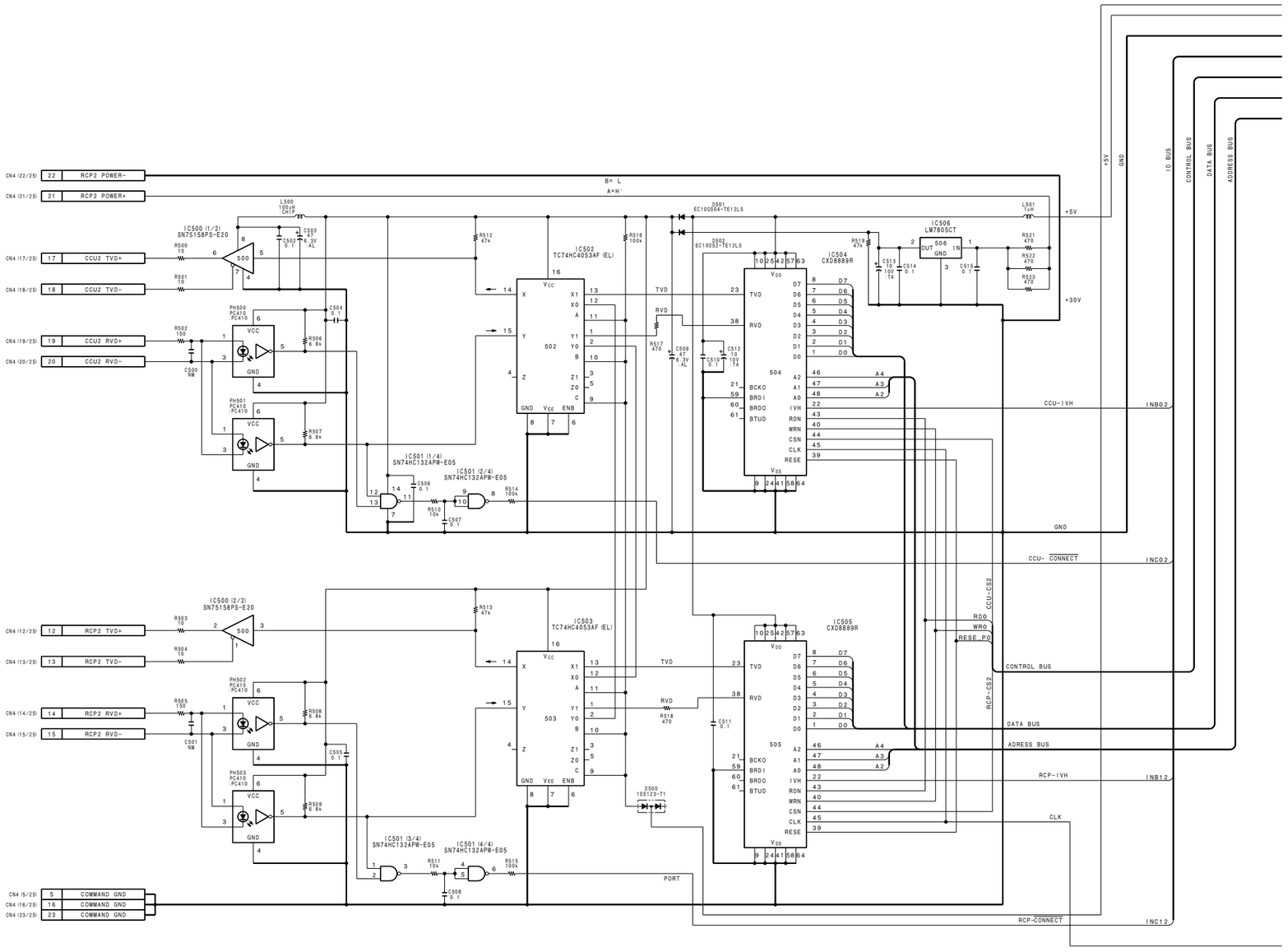
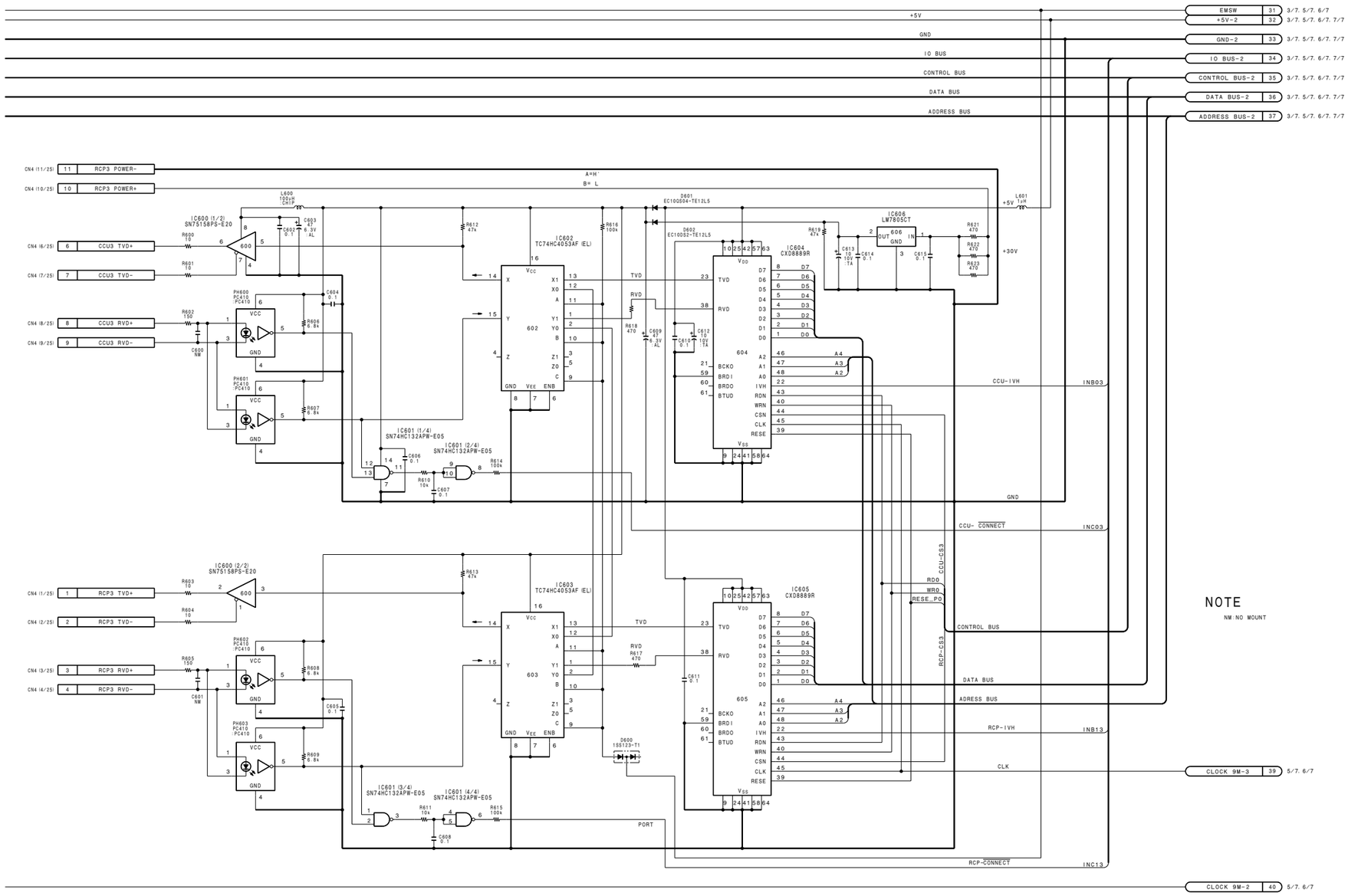


AT-100 (3/7)

BOARD NO. 1-658-249-12
LOT NO. 505-
B-¥CNU500-AT100-12

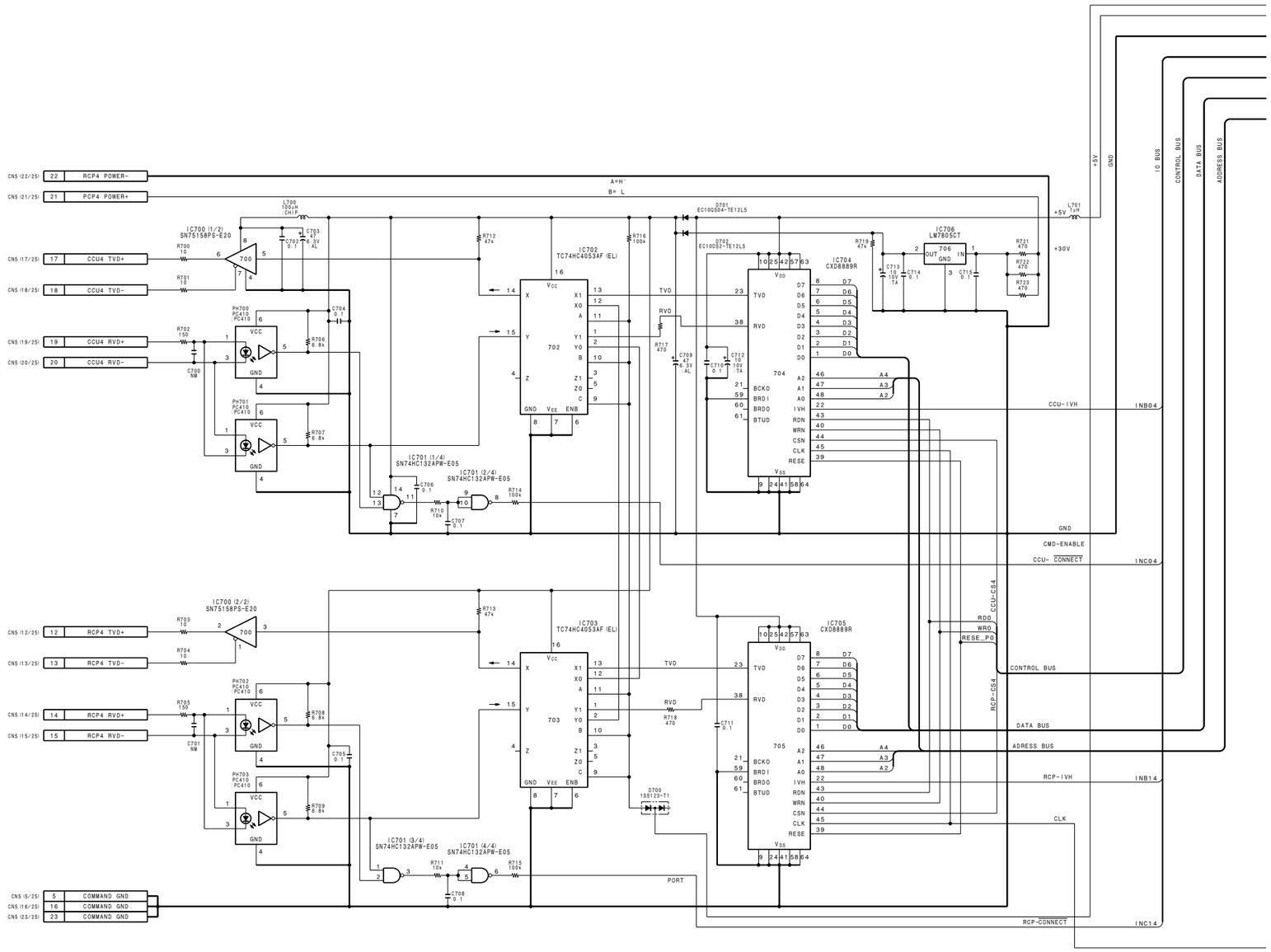
CNU-500 (UC)
CNU-500 (J)
CNU-500 (CE)

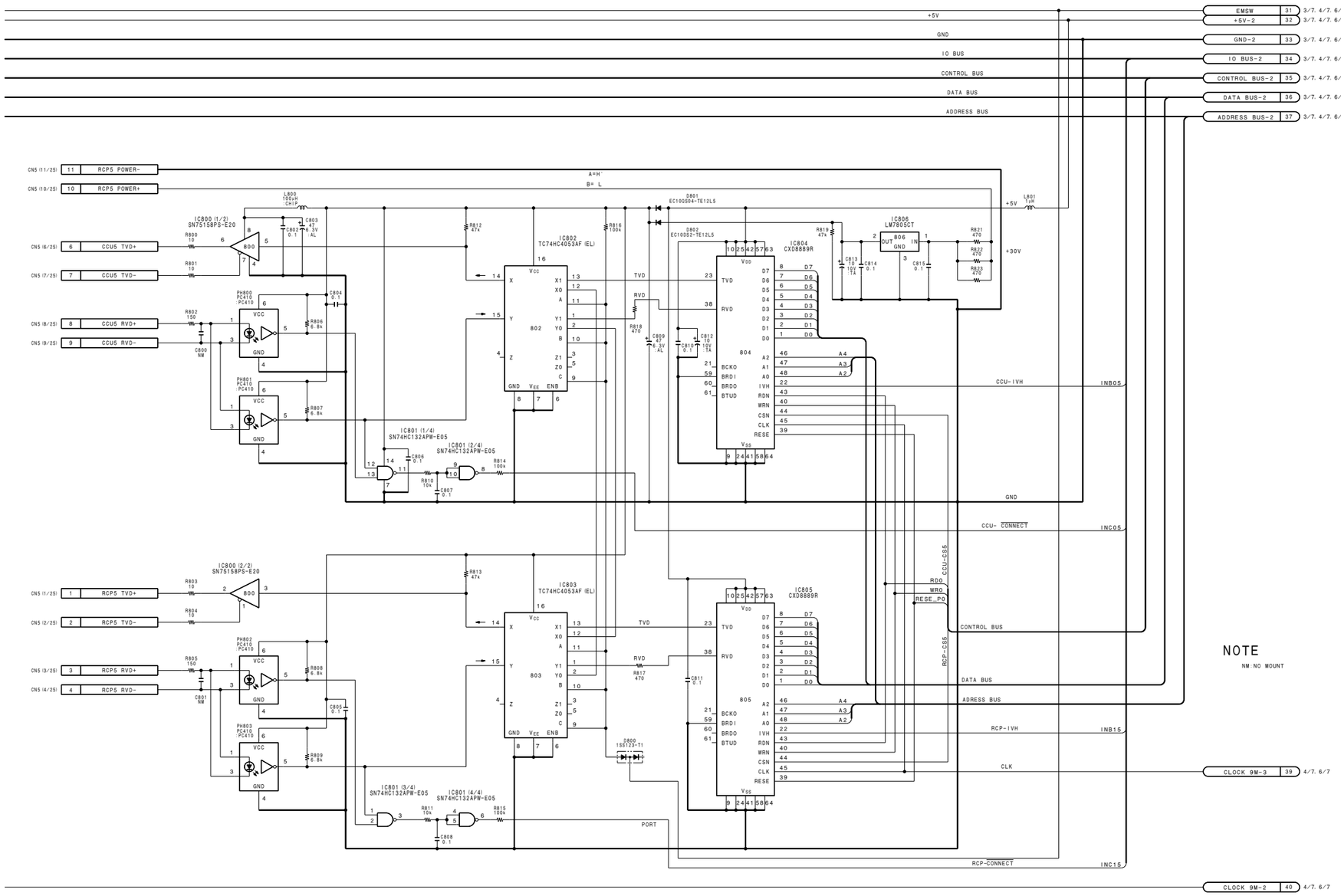




AT-100 (4/7)
BOARD NO. 1-658-249-12
LOT NO. 505-
B-¥CNU500-AT100-12

CNU-500 (UC)
CNU-500 (J)
CNU-500 (CE)





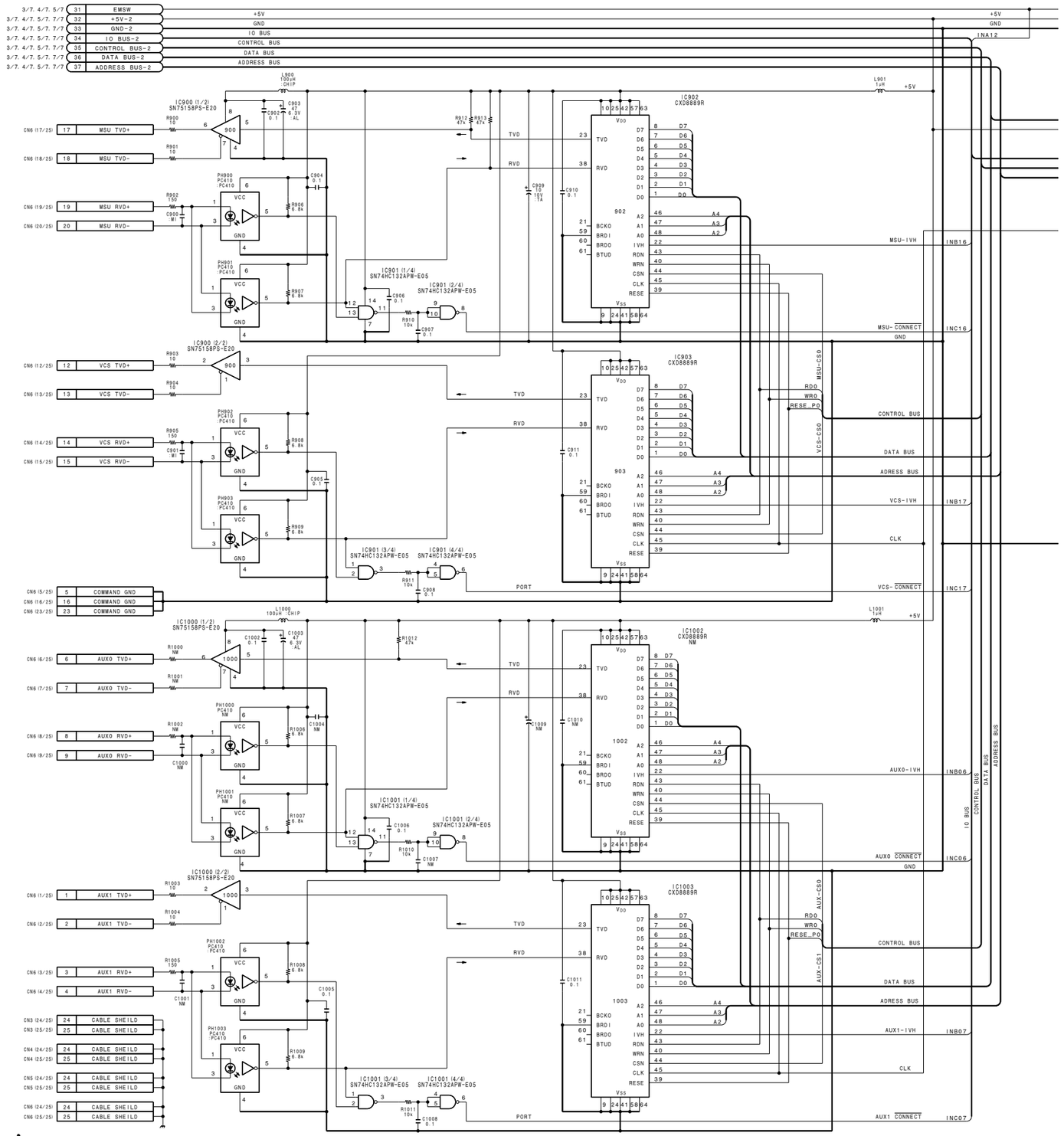
NOTE

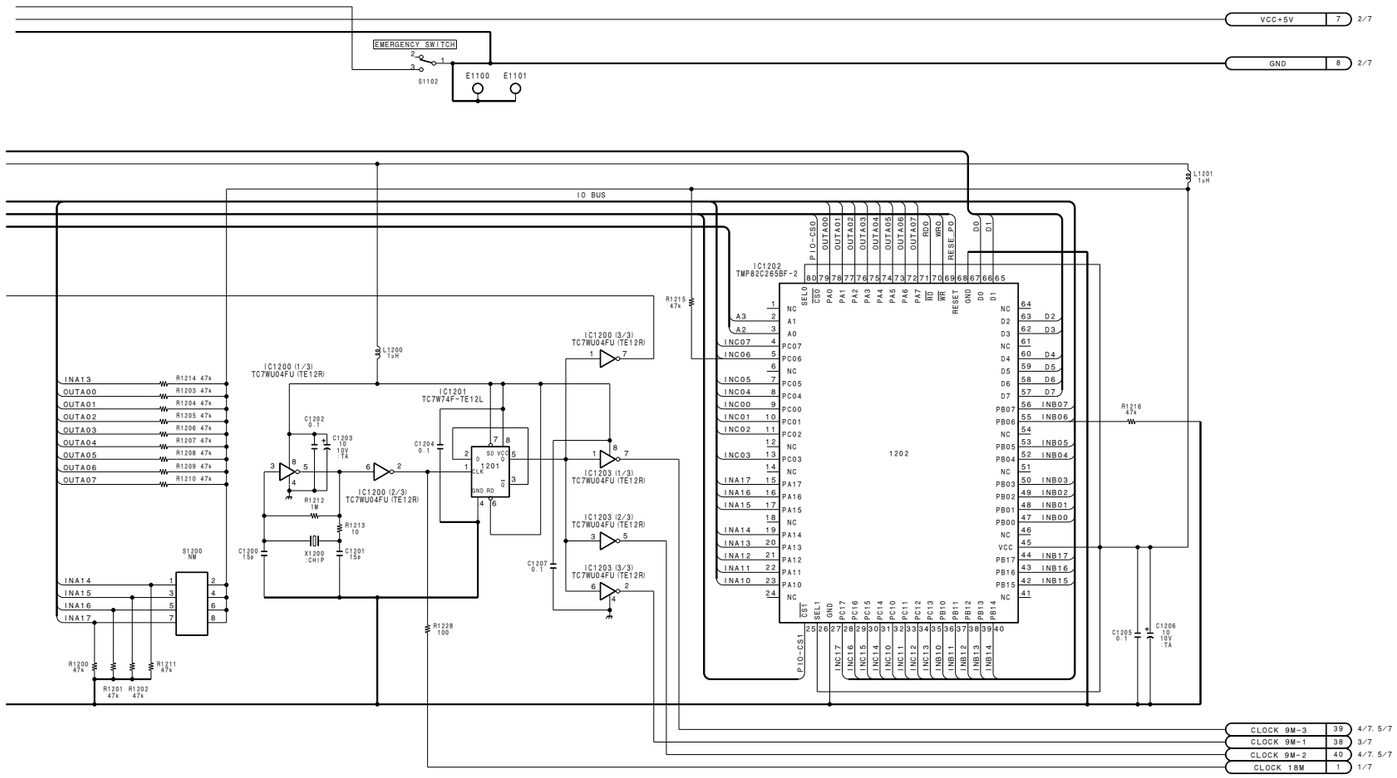
NM:NO MOUNT

AT-100 (5/7)

BOARD NO. 1-658-249-12
LOT NO. 505-
B-¥CNU500-AT100-12

CNU-500 (UC)
CNU-500 (J)
CNU-500 (CE)





NOTE

NM:NO MOUNT

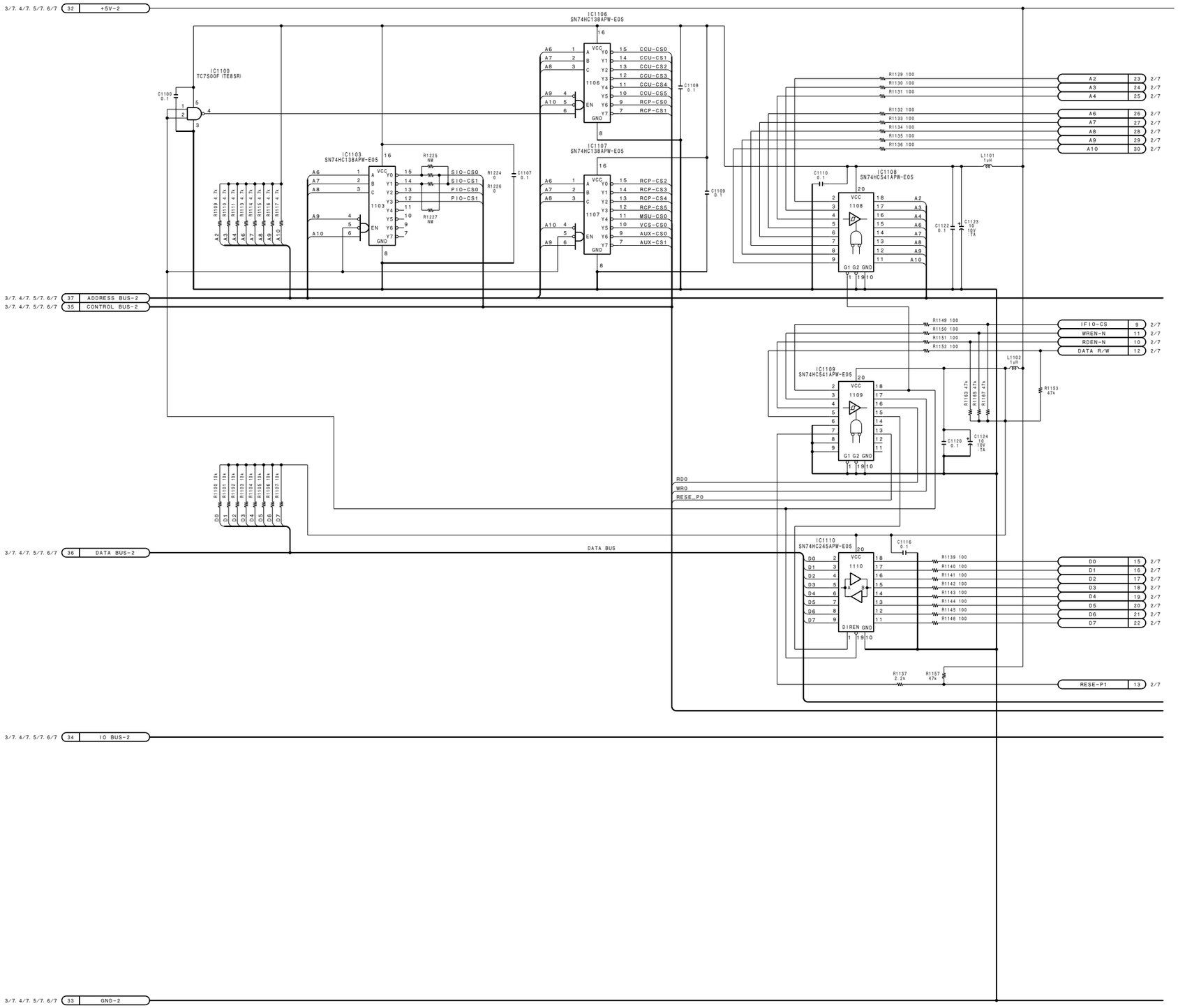
AT-100 (6/7)

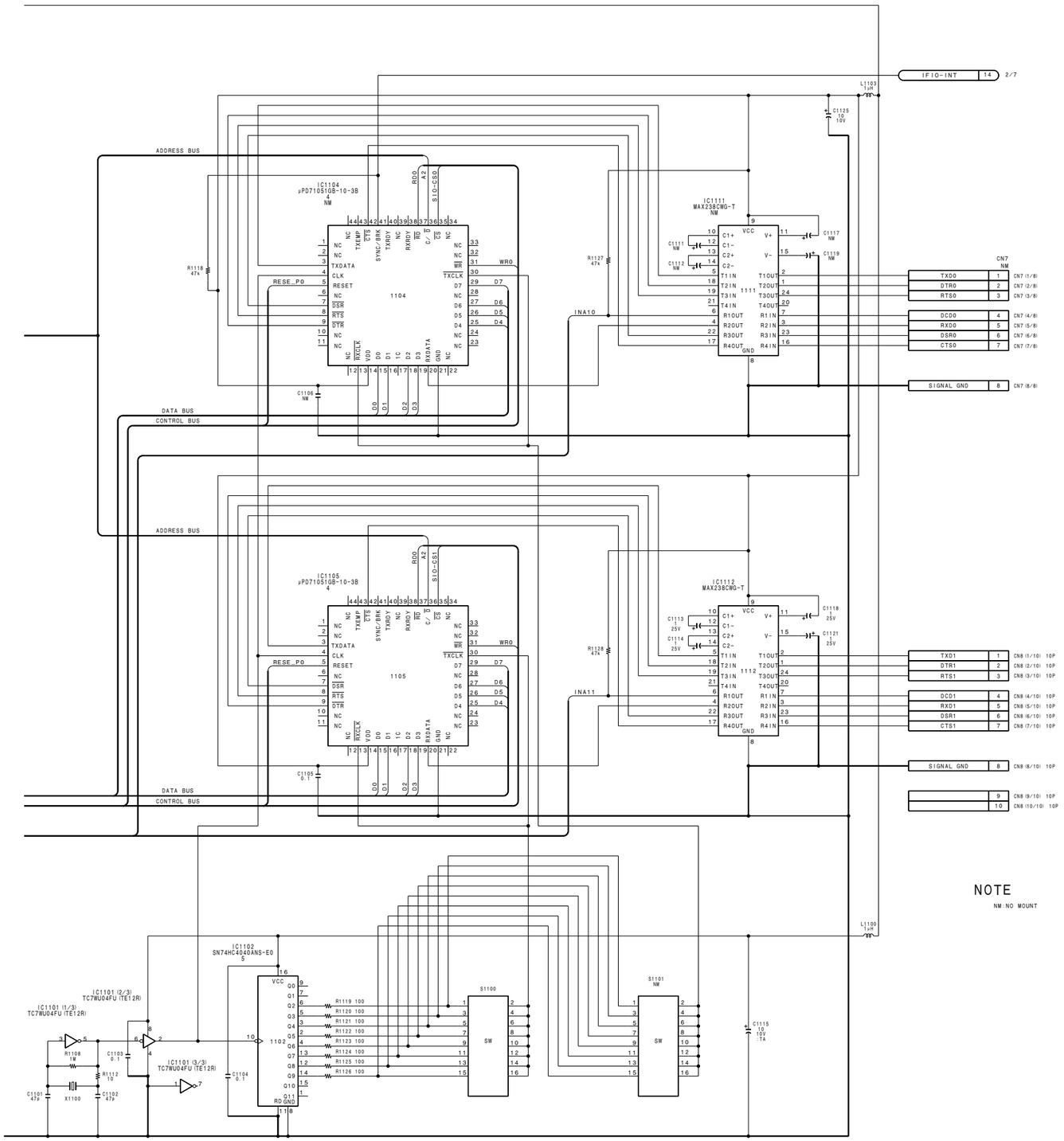
BOARD NO. 1-658-249-12

LOT NO. 505-

B-¥CNU500-AT100-12

CNU-500 (UC)
CNU-500 (J)
CNU-500 (CE)





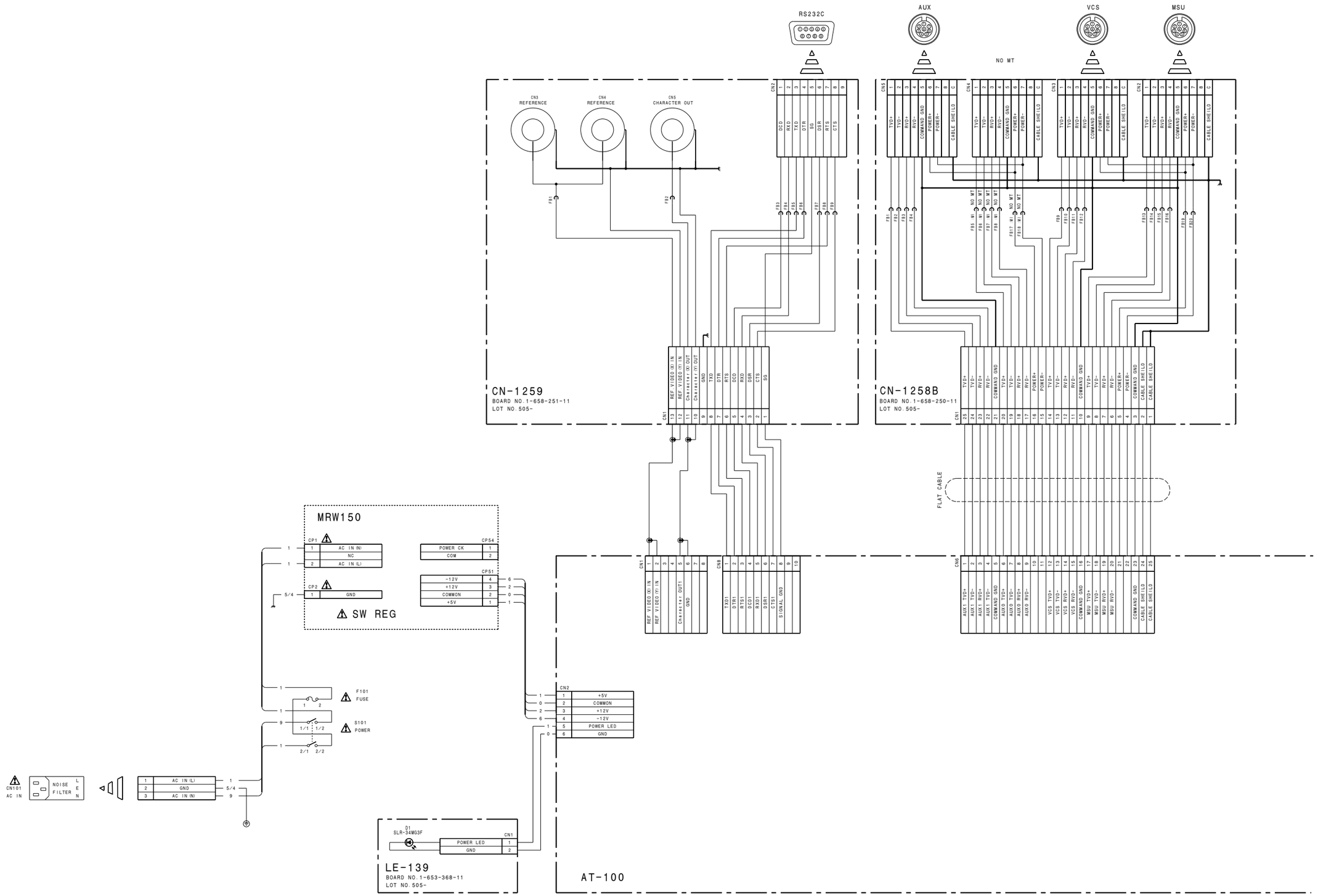
AT-100 (7/7)

BOARD NO. 1-658-249-12
LOT NO. 505-
B-¥CNU500-AT100-12

FRAME WIRING CN-1258A/1258B/1259 LE-139

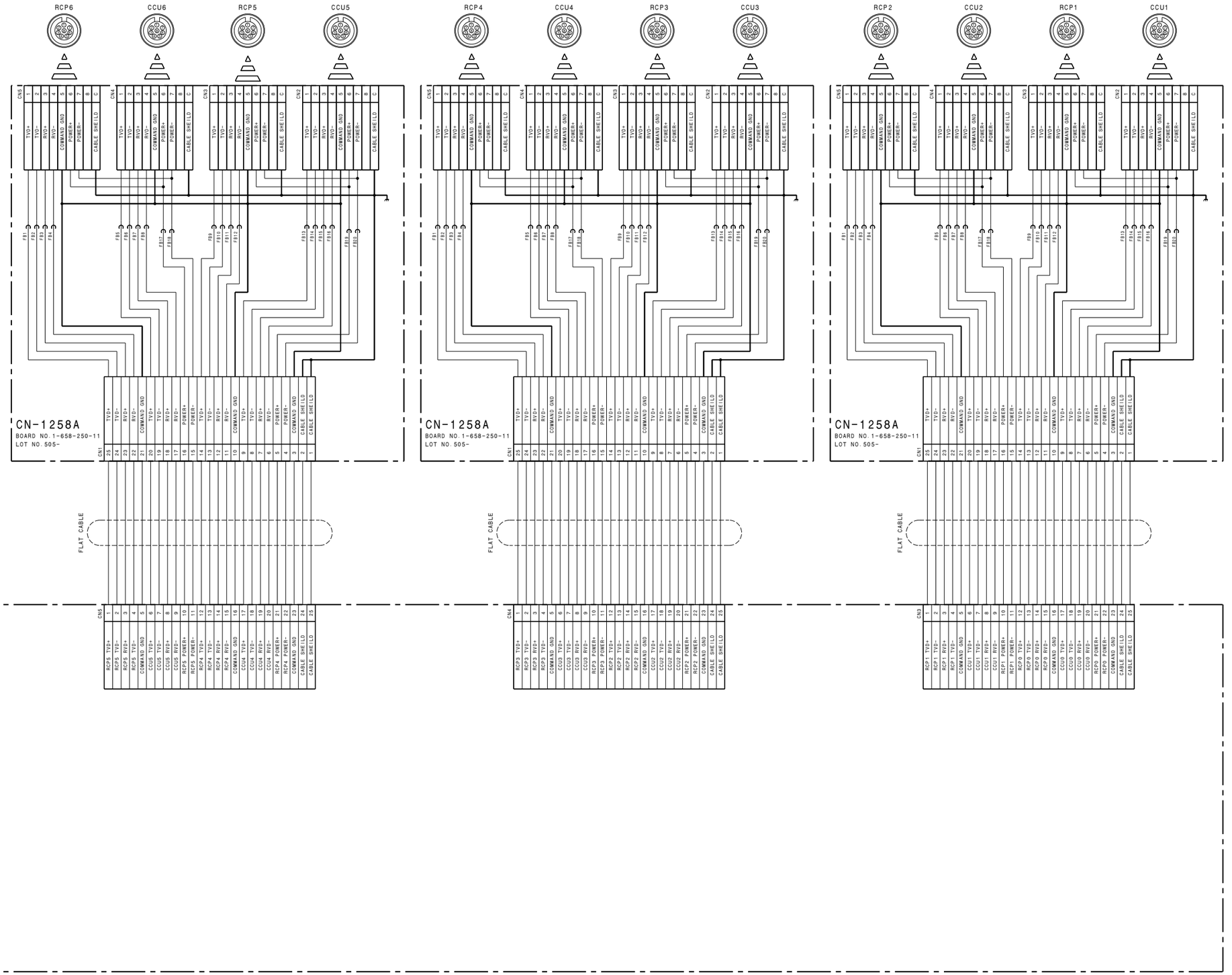
CNU-500 (UC)
CNU-500 (J)
CNU-500 (CE)

FRAME WIRING



6-16

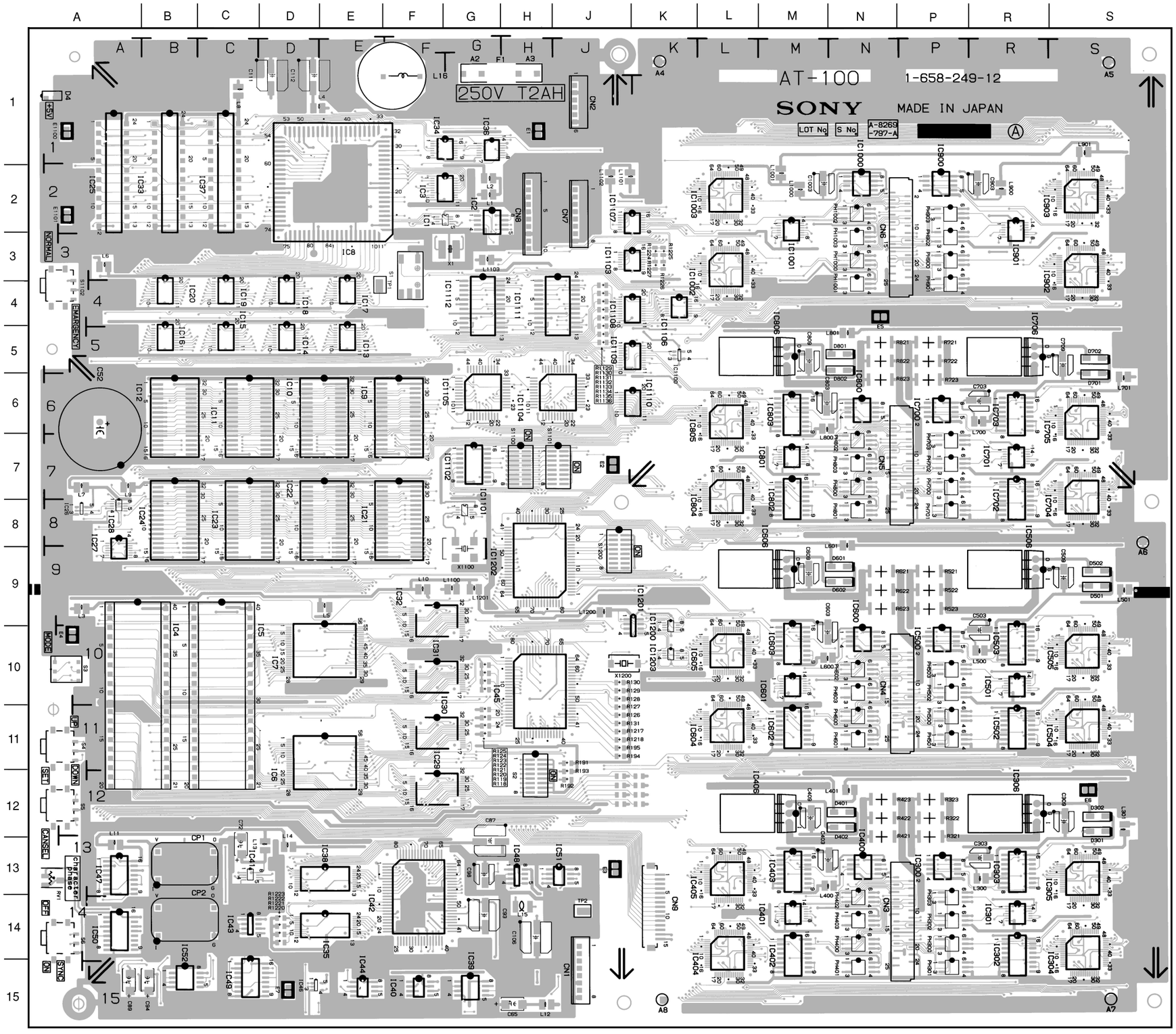
FRAME WIRING CN-1258A/1258B/1259 LE-139



FRAME WIRING
CN-1258A/1258B/1259
LE-139

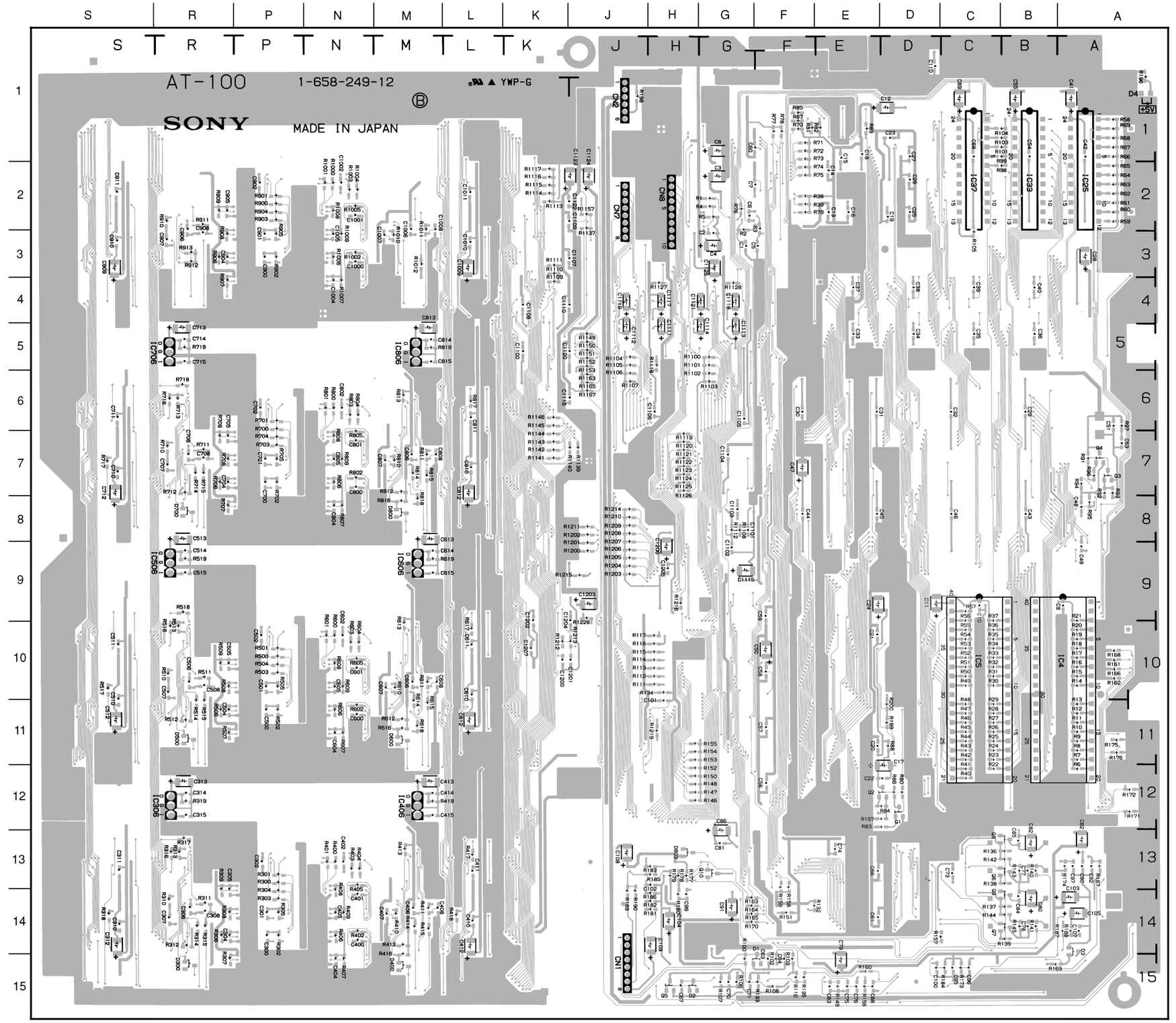
Section 7
Board Layout

AT-100 BOARD



AT-100 - A SIDE -
1-658-249-12

AT-100 BOARD



AT-100 - B SIDE -
1-658-249-12

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SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer :

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 3.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 5.25 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 20 V AC range are suitable. (See Fig. A)

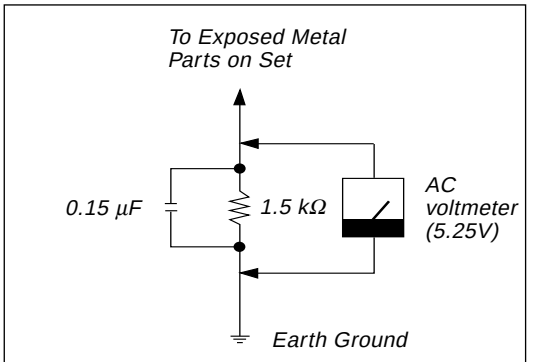

Fig A. Using an AC voltmeter to check AC leakage.

CNU-500 (UC,CE) E
3-188-826-01

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